

NATIONAL ELECTRAGIST

FORMERLY ELECTRICAL CONTRACTOR-DEALER

WITH RADIO SERVICE SUPPLEMENT

Vol. 22, No. 2

Official Journal of ASSOCIATION OF ELECTRAGISTS—International

DECEMBER, 1922



A Free Copy For You

"Trumbull Cheer" is now completing its sixteenth year. We want every Electragist to have his monthly copy with our compliments.

"Trumbull Cheer" now has a circulation of 30,000 monthly and with the new list of 7,000 more, it has the largest circulation of any publication in the electrical industry, we believe.

It is the official house organ of this company in which all new lines are illustrated and by means of which information on Trumbull material is given to the trade.

It contains each month articles on live subjects of the day—social, moral, industrial, economic—it does not deal in religious or political subjects.

In its columns, "Among the Trade," the best available jokes are wished on to our friends in the industry, some of which are sent us, and others of which we ourselves corral.

Trumbull Cheer
Department I,
Plainville, Conn.

Please put my name on Free
Mailing List for "Cheer."

If you do not get it you are missing a good bet. So sign over here in the right hand corner—it's just waiting to be sent to Trumbull Cheer, Department I, Plainville, Conn.

Name _____

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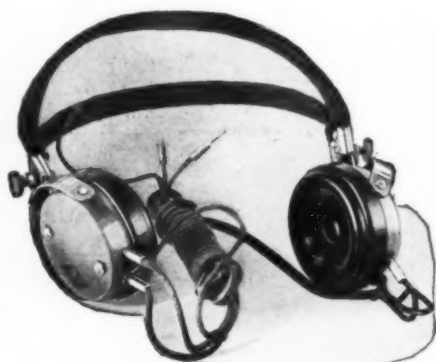
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"THE BEST THAT MONEY CAN BUY"

THE RADIO TRADE



MARK OF QUALITY



DeVeau Gold Seal Radio Head Set
Cat. No. 843



DeVeau "Silvertone Standard" Radio
Loud-Speaker. Cat. No. 833



DeVeau Gold Seal Radio
Head Set. Cat. No. 844



DeVeau "Silvertone Junior" Radio Loud-
Speaker. Cat. No. 834



DeVeau "Silvertone Station Type" Radio
Loud-Speaker. Cat. No. 836



DeVeau "Silvertone Midget"
Radio Loud-Speaker.
Cat. No. 835



DeVeau Radio Hand Micro-Trans-
mitter. Cat. No. 845



DeVeau Radio Desk Micro-Transmitter
Cat. No. 846



DeVeau Radio Adjustable Arm
Micro-Transmitter. Cat. No. 847



DeVeau Radio Stationary Type Micro-
Transmitter. Cat. No. 848



DeVeau Radio Flat Plug. Cat. No. 829.
DeVeau Radio Round Plug.
Cat. No. 828

We manufacture the following RADIO APPARATUS:—DeVeau "Gold Seal" Radio Head Sets, DeVeau "Silvertone" Loud-Speakers, DeVeau Radio Transmitters, DeVeau Radio Cams, DeVeau Radio Jacks, DeVeau Radio Binding Posts, DeVeau Radio Phonograph Attachments, DeVeau Radio Plugs, and other Radio Specialties.

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New York, U. S. A.

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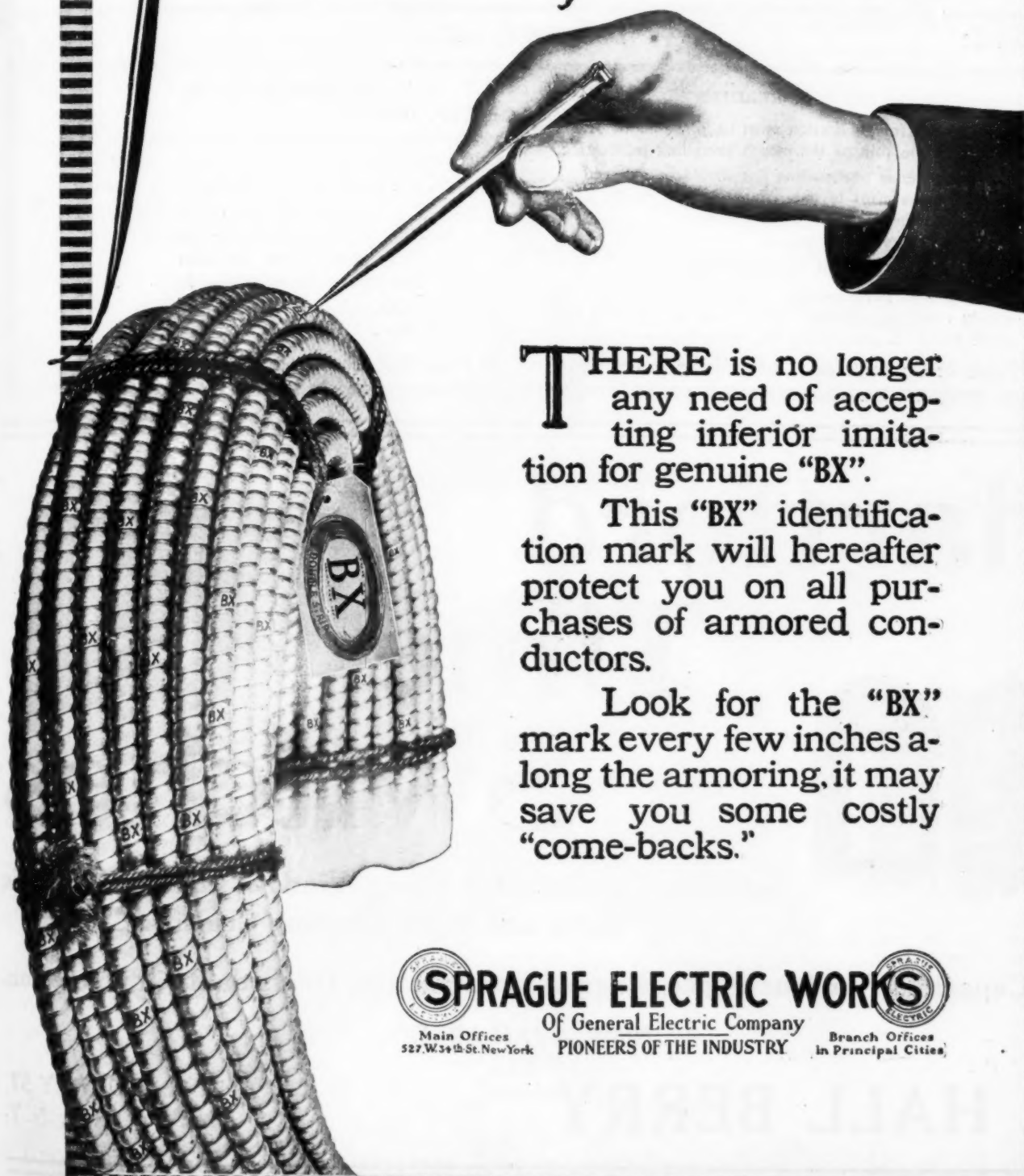
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This TRADE MARK

*Imprinted on the Armor now
Identifies all Genuine "BX" Cable.*



THERE is no longer any need of accepting inferior imitation for genuine "BX".

This "BX" identification mark will hereafter protect you on all purchases of armored conductors.

Look for the "BX" mark every few inches along the armoring, it may save you some costly "come-backs."



SPRAGUE ELECTRIC WORKS

Main Offices
527 W. 34th St. New York

Of General Electric Company
PIONEERS OF THE INDUSTRY



Branch Offices
in Principal Cities

NATIONAL ELECTRAGIST

FORMERLY ELECTRICAL CONTRACTOR-DEALER

(Trade Mark)

The Official Journal Published Monthly by the Association of
Electragists—International

FARQUHSON JOHNSON
Editor and General Manager

Radio Service Supplement Last Section

JAY S. TUTHILL
News Editor

Volume 22

DECEMBER, 1922

Number 2

TO OUR READERS

All matter for publication must be in the hands of the Editor by the 10th of the month preceding publication.

All changes in our mailing list should be received by us two weeks prior to date of publication of the issue with which the change is to take effect.

TO OUR ADVERTISERS

Changes in advertisements and all advertising copy should reach our office not later than the TENTH OF THE MONTH previous to the date of issue.

Table of Contents and Advertising Index Next to Last Page Preceding Radio Service Supplement

SUBSCRIPTION RATES

One Year, Domestic.....\$2.00
Foreign Subscriptions, including Canada, per year.....\$2.50
Single Copies.....20 cents

Copyright, 1922, by Association of Electragists—International.

Entered as second-class matter September 1, 1919, at the Post Office at Utica, New York, under the act of March 3, 1879.

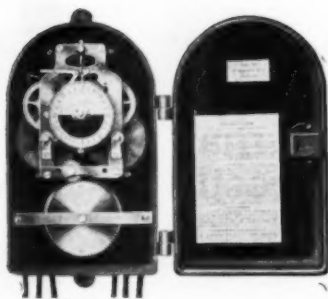
PUBLICATION OFFICE:

100 Liberty Street, Utica, N. Y.

Editorial and Business Office:

15 West 37th Street, New York City

Hartford Time Switches



Infalible Monitors for Store Window Lighting, Electric Signs and Street Lighting Circuits.

All Capacities, Various Types, Rugged Construction, Dependable in Operation.

NOW AVAILABLE

A. HALL BERRY

71-73 MURRAY ST.
NEW YORK, N. Y.

H&H Gold and Silver Star SWITCHES

"When the buyer wants the best"

Ten years of experiment went into the design of this new "H & H" line—the biggest achievement ever produced in high grade push button switches. Only the best material, and plenty of it,

used in every part. Perfected production methods assure the quality of every switch. In appearance, operation and durability, these switches warrant your enthusiastic endorsement.

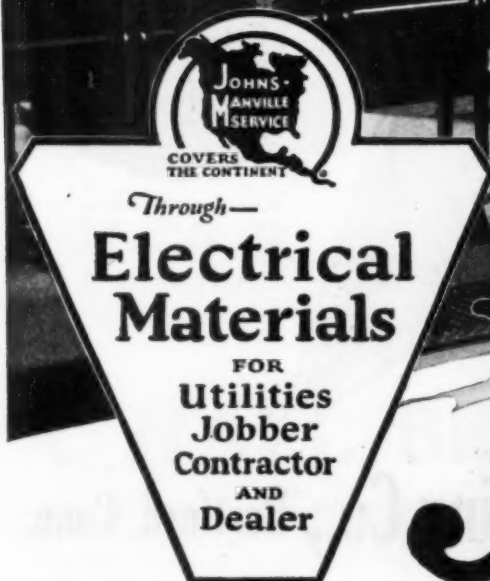
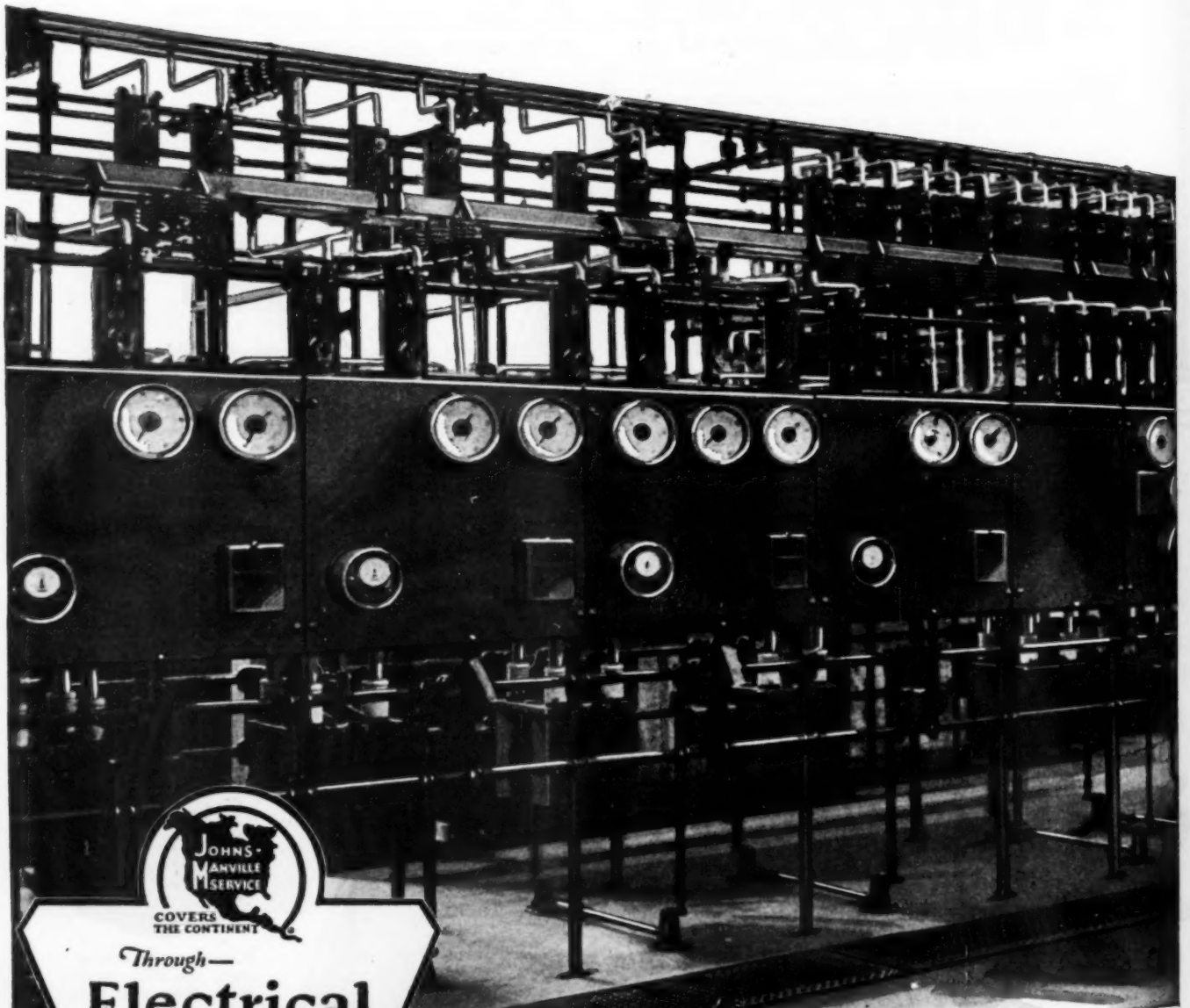
Each of these switches is distinguished by a *star* set in the face of the "current on" button. "Gold Star" Switches are marked with a 14 carat gold star. "Silver Star" Switches have an Undark star which makes the "on" button visible night or day.



The Hart & Hegeman Manufacturing Co., Hartford, Conn.

0420-3.

Switchboards for *of* Ebony



JOHNS-

instance Asbestos Wood

Rarely does one material surpass all others for some particular use as completely as Ebony Asbestos Wood surpasses other switchboard materials.

In every essential requirement—electrical resistance, physical strength, workability, lightness, uniformity and appearance—Ebony Asbestos Wood has been found to be unequalled by many of the largest central stations and other users of switchboard material.

That these people prefer it to all other materials seems to say that it is well worth investigating.

JOHNS-MANVILLE Inc., Madison Ave. at 41st St., New York City

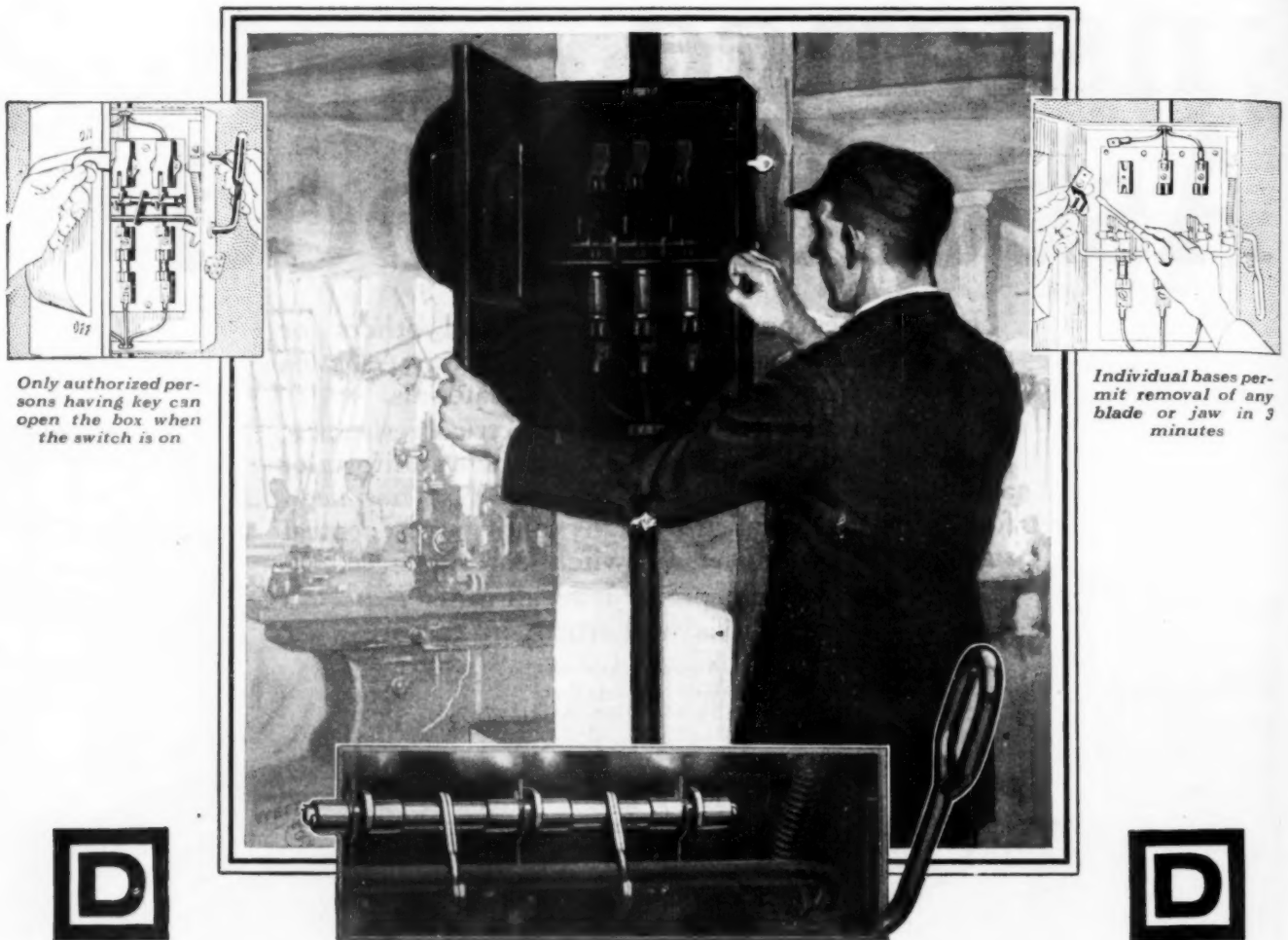
Branches in 56 Large Cities

For Canada: CANADIAN JOHNS-MANVILLE CO., Ltd., Toronto



Designed by F. W. Lachicotte for the Second Street Station, Southern Public Utilities, Charlotte, N. C.

MANVILLE



Only authorized persons having key can open the box when the switch is on

Individual bases permit removal of any blade or jaw in 3 minutes

Has a Crossbar That Cannot Get Out of Alignment

Unlike Fibre, This Rigid Steel Crossbar Cannot Char, Warp, or Split

The new 80000 Series has a steel crossbar whose satisfactory operation cannot be affected by heat or moisture. Even the best fibre bars will eventually char, split, and warp out of alignment. But the Square D steel bar will withstand the most rigorous operating conditions—and continue to give a complete, positive, non-arcing contact.

Long Desired Features

The Square D key permits authorized persons to inspect the switch without interrupting the circuit, to operate the switch with the cover open, or to lock the cover permanently shut. This fully answers the demand of production men for an enclosed switch that could be inspected without shutting down machinery.

Without the key, the cover cannot be opened when the switch is on—or the switch closed when the cover is open. Current carrying parts can be replaced without removing base from box or disconnecting all wires. These are mounted on individual bases of moulded insulating material and any blade or jaw may be replaced from the front of the box in three minutes. That is a feature appreciated by all electricians as a time saver.

See This New Switch At Once

You should not delay in seeing this newest, safest, easiest-to-install safety switch. Write our nearest office. A representative will call and demonstrate its numerous superiorities.

SQUARE D COMPANY, DETROIT, U. S. A.

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Chicago	Toronto
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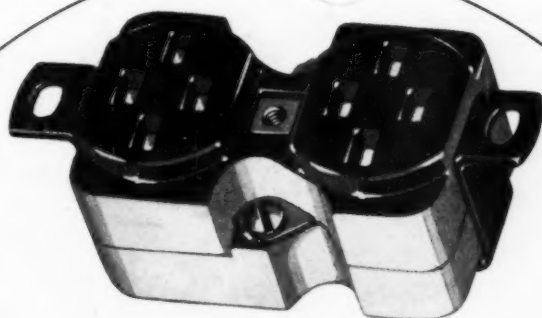
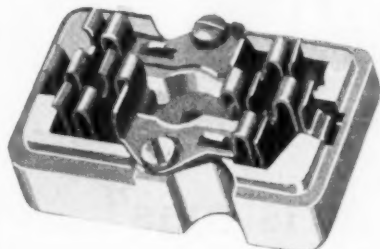
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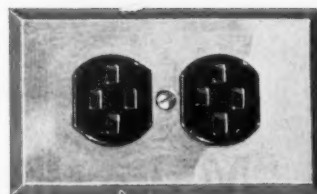
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SQUARE D

SAFETY SWITCH

*Duplex Convenience Outlet*

"Terminal and Jaw are made from one piece of metal—no loose connections"

*"Duplex Outlet with Plate."*

An Appeal to Electragists—

ELECTRIFY! That is the great national movement now under way. And one of the great aims of this movement is to install more convenience outlets. It is your opportunity—prescribe and sell more outlets.

Both Single and Duplex Convenience Outlets are now manufactured by the Square D Company.

FITS ALL PLUGS

The single and duplex convenience outlets will accommodate tandem, parallel, or polarized blade plugs.

SIMPLICITY IN DESIGN

Terminals and jaws are made from one piece of metal, avoiding connecting screws and guaranteeing good connection. No sealing wax is used—all live parts are enclosed by two pieces of porcelain.

SERVICE

Jaws are the Square D multi-spring type, with contact on both sides of inserted blades. Current carrying parts are unusually heavy and springy.

EASY TO INSTALL

The convenience outlets are easily installed. They are thin and can be easily used with the shallow type outlet box. Terminal screws are large grooved and easily accessible. Furnished with mounting screws and washers.

Get into the national movement for more outlets. Square D Jobbers can give you prompt service on your requirements.



"Single Convenience Outlet."
Cat. No. 1020

SQUARE D COMPANY

PERU, INDIANA



WALKERVILLE, ONT.

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“Make this an Electrical Christmas” Use Effective Selling Helps

You will have noticed that Santa Claus, despite his apparent age, is always smiling.

That smile comes from making other people happy.

Let all Electragists take their cue from the old gentleman and set out to make millions of people smile this Christmas.

They can do it by selling electrical things as Christmas gifts.

The live Electragist will sell electrical wiring installations to make modern home comforts available and electrical appliances to add the necessary convenience.

Both are appropriate, useful, lasting and desirable Christmas gifts.

The Society for Electrical Development has prepared a wonderful assortment of Christmas Campaign Selling Helps, and in the best spirit of cooperation, has made them available to members of the Association of Electragists, at Society member prices.

We told you of this offer in a letter with which we sent you a copy of the “broadside” giving information and prices of these selling helps.

If you received the “broadside,” we urge you to order now. If your copy went astray, write for another and for information about the Society to:

STAFF HEADQUARTERS

The Society for Electrical Development, Inc.

522 FIFTH AVENUE

NEW YORK, N. Y.



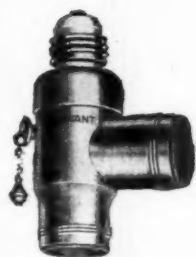
Take a tip from the waiter!

When you buy pie at a restaurant you are quite apt to buy pie a la mode.

The waiter suggests "a la mode" when you say "Pie." He knows you probably like it and the restaurant makes a big profit on the ice cream. That makes him solid with the boss.

You, the Electrical Merchant, can do the same thing. Whenever you sell a household appliance—lamp, iron, toaster, grill, washer, cleaner—suggest to your customer the use of a Bryant Dubl-duty socket or a Bryant No. 651 Appliance Switch Plug, or a Bryant KE Pilot-cap. Your customer probably needs a number of these accessories and you can make a clean profit on the sales.

Don't pass this up. Your business needs profits as much as the restaurant and you certainly are as keen a salesman as a waiter.



BRYANT
Dubl-Duty Socket
\$1.35



BRYANT
Spar-Tap Socket
\$1.00



BRYANT
No. KE \$0.95



BRYANT
No. 651 \$1.00



IN the humid, lint laden atmosphere of the textile mill R & M Motors operate with that unfailing reliability they show in all other industrial plants. Their thoroughly moisture-proofed windings, over-size, dust-proofed bearings, heavy frames, and low temperature ratings, provide a margin of safety which insures long life and dependability in every class of industry, whether service conditions are normal or severe.

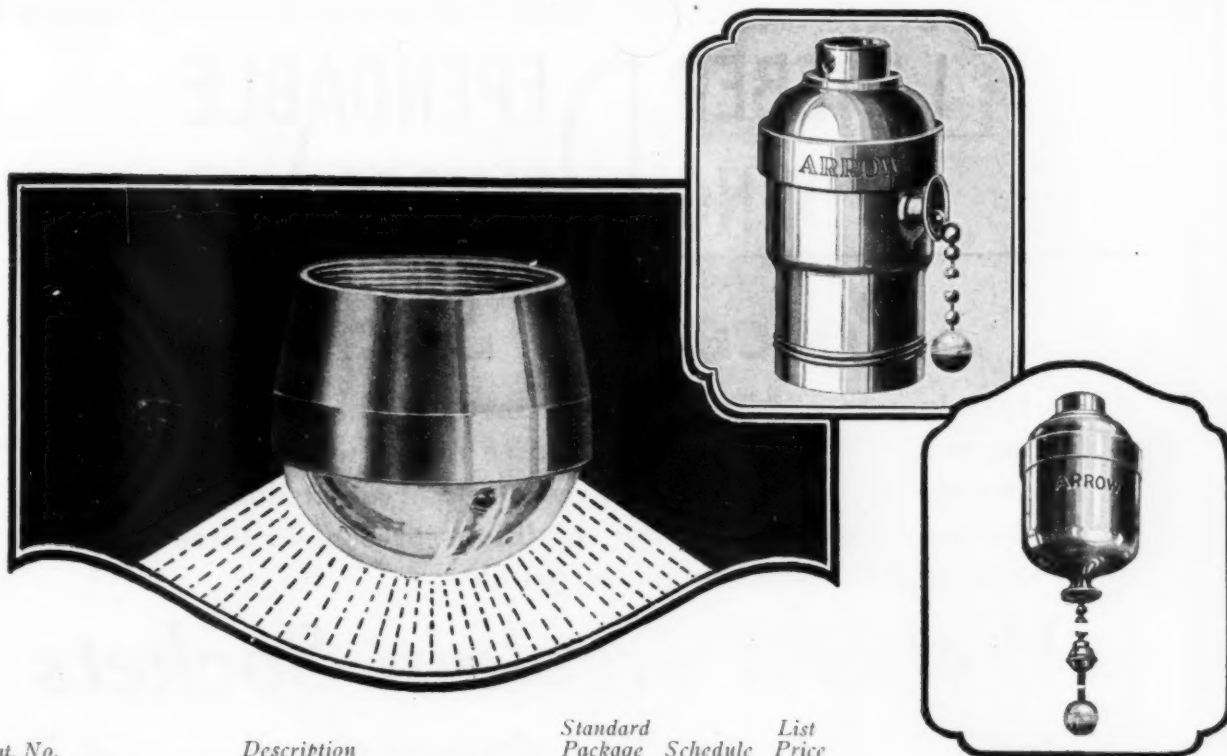
Because of their absolute reliability and low maintenance cost, users who have tried R & M Motors almost always express a preference for them when buying additional motors. And for this reason, contractors, motor dealers and jobbers find maximum profit in the R & M line.

THE ROBBINS & MYERS COMPANY

SPRINGFIELD, OHIO

BRANTFORD, ONTARIO

Robbins & Myers Motors



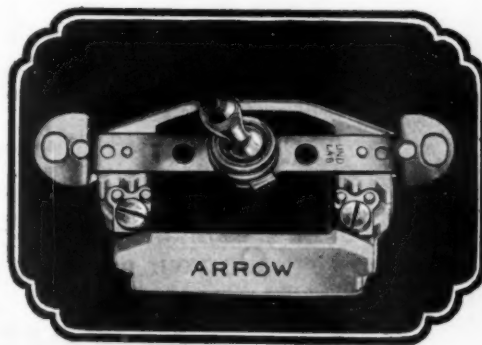
Cat. No.	Description	Standard Package	Schedule	List Price
1870	Glo-Tip for pull devices and toggle switches.	100	H	\$0.25

Arrow Glo-Tip

ANOTHER reason for using Arrow Pull Sockets, Pull Switches and Toggle Switches both Surface and Flush. All varieties of these four classes of devices have threaded balls or handles to which this luminous tip can be attached. The use of Arrow devices makes possible the attaching of a Glo-Tip radium indicator whenever desired without changing the old installation or ordering special material. This threaded feature is standard with the Arrow Line.



THE ARROW ELECTRIC COMPANY
HARTFORD, CONN.



ARROW

The complete line of Wiring Devices

WEBER DEPENDABLE WIRING DEVICES

Porcelain Sockets

have important advantages over metal shell sockets for bathrooms, cellars, kitchens and other places where dampness, steam, dust or fumes are present. Porcelain does not deteriorate under any of the conditions present in these locations and the finish is indestructible.

Weber Porcelain Sockets



have important advantages over all makes. They are constructed on the same wiring principle as brass shell sockets, and, in many of the various devices, the interior parts are identical with those used in brass shell devices.



And the Line is Complete



Six
Socket
Bodies



Five
Switch
and
Rosette



Twelve
Caps



Sixteen
Bases

On your next order for porcelain sockets, specify WEBER

CONSULT OUR CATALOG

HENRY D. SEARS

General Sales Agent

80 BOYLSTON STREET
BOSTON 11, MASSACHUSETTS

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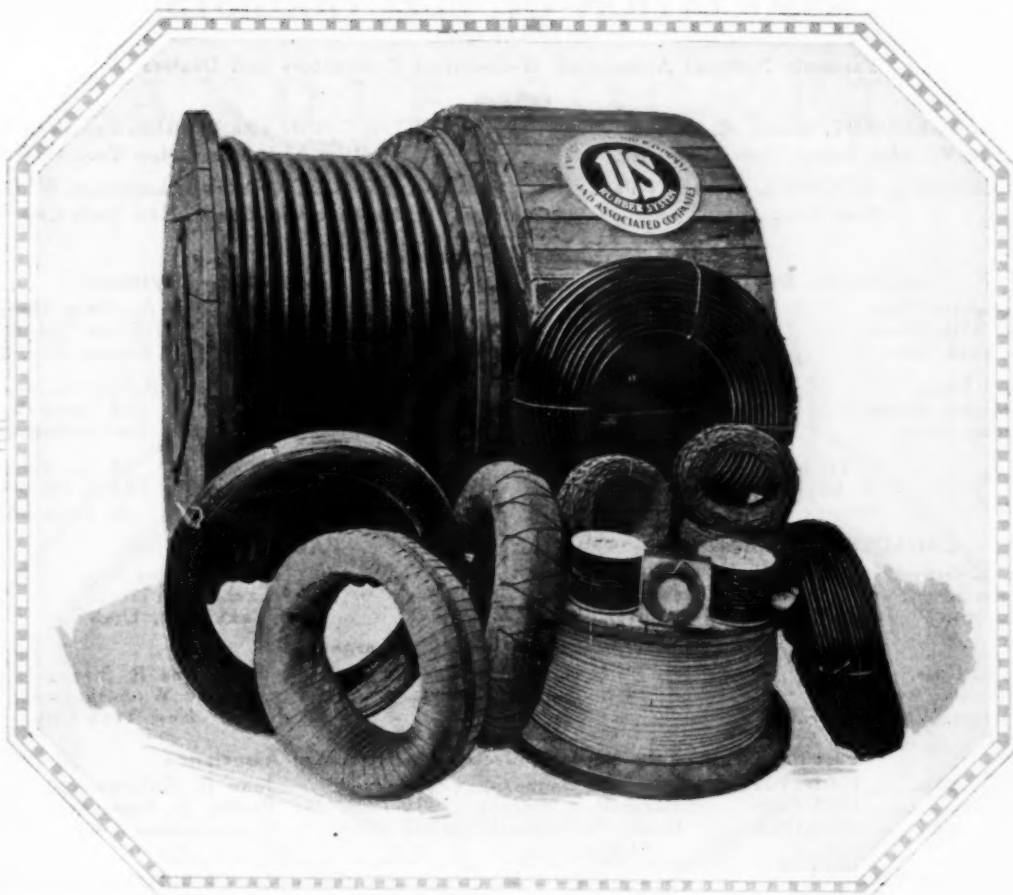
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San Francisco

Cleveland

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Inbuilt Quality

U. S. PARACORE Wire is known everywhere as a quality wire because quality has been painstakingly built into it step by step.

Every operation in the making of U. S. PARACORE Wire, from the drawing of the wire to the application of the finish, takes place in our own factory under our direct supervision. To successfully pass our severe inspections it is necessary that the material used in the manufacture of U. S. PARACORE Wire stand a test that in every instance calls for more than code requires.

This gives to U. S. PARACORE an extra margin of safety that is a guarantee of quality.

U. S. PARACORE Wire in any building is evidence of a thoroughly good job.

United States Rubber Company

1790 Broadway, New York

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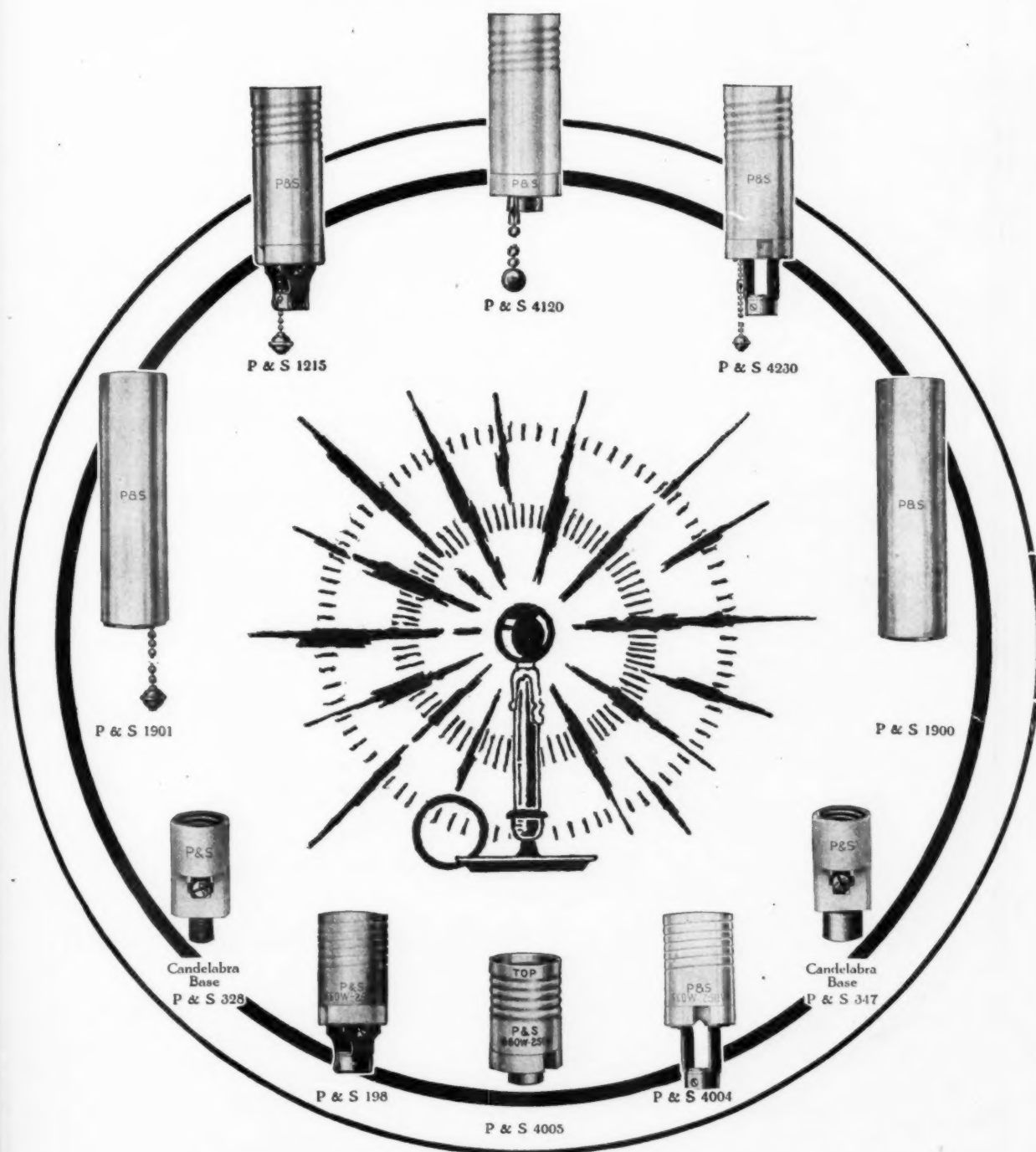
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336 Camp Street, New Orleans, La.

EXECUTIVE COMMITTEE MEETING, MARCH 14 AND 15, 1923, NEW YORK CITY

CANDLE SOCKETS



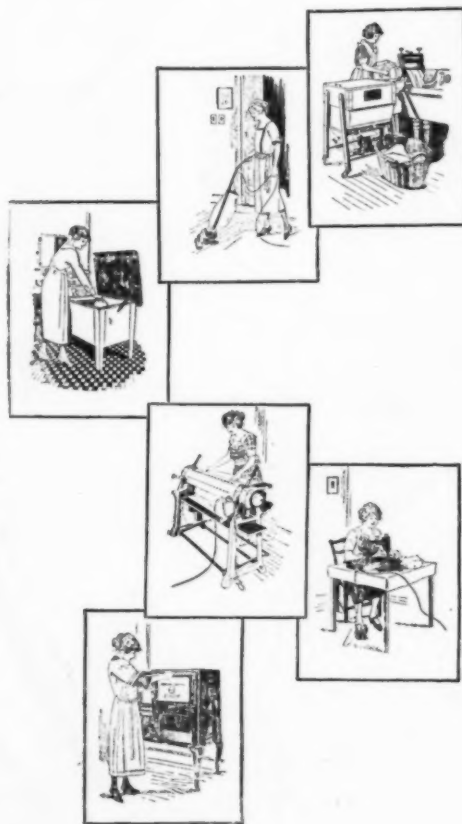
PASS & SEYMOUR, INC.
SOLVAY, NEW YORK

NEW YORK BOSTON PHILADELPHIA SAN FRANCISCO CHICAGO



The Old Time Servant Girl whom 3,500,000 women are seeing each month in "Modern Priscilla," "Pictorial Review," and "Good Housekeeping."

There is a Western Electric housekeeping appliance to do speedily and economically each of the tasks she did slowly and laboriously.



A One Cent Post-Card Will Put Dollars In Your Cash Register

The great merchandising and retail businesses of this country have been built as a result of direct mail sales methods.

Why don't you use our Direct by Mail Department?

A post card to our nearest House will start your 1923 business off on the right foot toward bigger profits.

A
National
Electrical
Service

Western Electric Company

OFFICES IN ALL PRINCIPAL CITIES



*Make Your Store
a Gift Shop*

A New Christmas Gift for Radio Fans

With every new popular craze comes a whole new crop of wants to be satisfied—a new assortment of articles to be added to the holiday shopping list as gift possibilities.

Radio in the home has thus added many things to the already long list of "Christmas gift" electrical devices. The Tungar Battery Charger insures the efficient performance of radio storage batteries (both "A" and "B") thus removing for all time a prolific source of annoyance and trouble in the operation of radio receiving sets.

Tungar has charged storage batteries for years and any radio fan will be proud to own one. Feature Tungar as a Christmas gift with your other radio material. It is broadly advertised in radio papers.

Ask any G-E distributor for dealer helps including free window display, or address Merchandise Department, General Electric Company, Bridgeport, Conn.



Tungar
BATTERY CHARGER

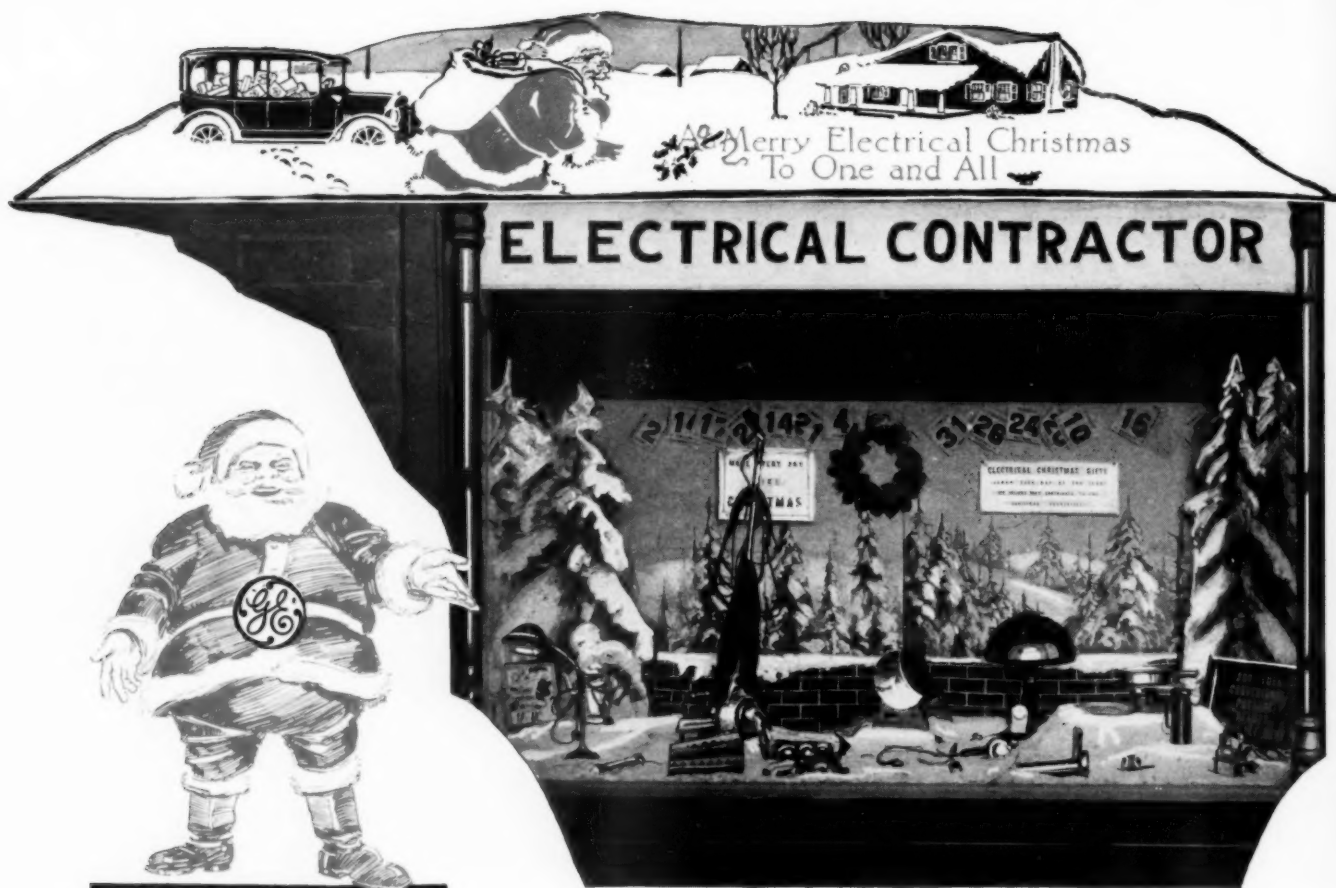
*With simple attachment will
charge storage "B" batteries also.*

General Electric Company

General Office
Schenectady, N.Y.

Sales Offices in
all large cities

35A-90



*Make Your Store
a Gift Shop*

The General Electric Company, and particularly its Merchandise Department, take this occasion to wish all dealers and distributors a busy and happy holiday season and a prosperous New Year.

Appreciative of the friendship and cooperation of its customers during the past year, the company pledges, during 1923, its most active efforts in furthering the interests of all distributing channels of the electrical industry and in contributing as far as it is able to

**A Merry Christmas and
a Happy New Year**

**General  Electric
Company** General Office
Schenectady, N.Y. Sales Offices in
all large cities 95-642



A Merry Electrical Christmas
To One and All

Electrical gifts are no longer novel—everyone is giving them—but they are still up-to-date. They are ideal for Christmas giving because they are useful, ornamental and of lasting value.

The electric shop, with its varied line of interesting things, has all the elements of a real gift shop, even the slightest effort to secure this business will bring generous results.

For assistance in Christmas display problems address your G-E distributor or Merchandise Department, General Electric Company, Bridgeport, Conn.

*Make Your Store
a Gift Shop*

**General  Electric
Company**

General Office
Schenectady, N.Y.

Sales Offices in
all large cities

95-441



Bridgeport Works
General Electric Co.

Where to Get G-E Service

For Business in the United States

G-E Sales Office	G-E Distributing Jobber
Alabama, Birmingham.....	Matthews Elec. Supply Co.
Arizona, Phoenix.....	Southwest G-E Co.
Arkansas, Little Rock.....	
California, Los Angeles.....	Pacific States Electric Co.
California, Oakland.....	Pacific States Electric Co.
California, San Francisco.....	Pacific States Electric Co.
Colorado, Denver.....	The Hendrie & Bolthoff Mfg. Sup. Co.
Connecticut, Hartford.....	
Connecticut, New Haven.....	
Connecticut, Waterbury.....	New England Eng. Co.
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Florida, Tampa.....	Florida Elec. Supply Co.
Georgia, Atlanta.....	Carter Electric Supply Co.
Georgia, Savannah.....	Carter Electric Supply Co.
Illinois, Chicago.....	Central Electric Company Commonwealth Edison Co.
Indiana, Evansville.....	Crescent City Electric Co.
Indiana, Fort Wayne.....	
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Massachusetts, Worcester.....	
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Michigan, Jackson.....	
Minnesota, Duluth.....	Northwestern Elec. Equipment Co.
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Tennessee, Nashville.....	
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The New Constitution

Last month there was mailed to the membership of the Association of Electragnists copies of the revised Constitution and Bylaws which were adopted at the 22d annual convention held in Cincinnati last October. It is plainly the duty of every member to read this new document, and to familiarize himself with its context.

The first change made was in the title of the organization. There was a desire to get away from such a long name—The National Association of Electrical Contractors and Dealers—and to employ the new word "electragnist." Also, upwards of two hundred members in Canada felt that they were not given proper recognition when the word "National" was a part of the title; and so with a desire to overcome all objections, Association of Electragnists—International—was adopted.

Under the old Constitution the Executive Committee was composed of nineteen members, representing four territorial divisions. The amendments which were adopted establish eight divisions, providing the membership with a more equal representation. At the same time the number of committeemen is reduced to eleven, which will work for a saving in time as well as expense.

The new Constitution will enable the state and local organization to operate independently. Heretofore it was necessary for a member to belong to his local, district, and state organizations in order to belong to the National. This was a handicap to each of the several organizations and to the member as well, especially in the payment and collection of dues. Henceforth each of the various associations will be able to develop and expand according to the extent of its activities, and the member will choose for himself as to whether he will belong to one or more of them. At the same time the local organization will come into direct contact with the parent organization, which will be mutually beneficial.

An added feature to the Constitution as it now stands is the provision for labor sections. The question of labor is so important an item with the majority of members that proper channels for it were demanded. Hence a non-union section and a union section were established, and it is understood that both of these new sections are being organized. No member of the Association of Electragnists is required to join either of these sections—it is entirely optional—and both sections will be self supporting.

In order to bring about a closer contact with the membership at all times, it is necessary to employ additional fieldmen and to increase the various activities of the Association. As this will require larger revenues, the classification schedule has been revised, and the dues are increased accordingly. With added funds there will be created more tangible benefits for the membership—all of which will place the contractor-dealer branch of the electrical industry in a more important position.

These amendments seem to be a forward step—an advance in the right direction. It was the intent of the Constitution Committee to go forward—to progress—and it seemed to be the feeling of those in attendance at the Cincinnati Convention that each and every item of the revision was in the interests of the membership as a whole. No party lines were drawn—no sectional feeling was in evidence—and no sense of selfishness was apparent. There was full and free discussion of all questions and harmony reigned supreme.

It is hoped that the Association of Electragnists—International—may enlarge its borders to its utmost capacity. It has passed its twenty-first birthday. May it enjoy the abundance of ripened manhood!

Christmas Brings Business

Christmas! Through the early years—through the middle years—all through our lives Christmas has meant something big to everyone of us. It would be hard to say whether its true expression is exemplified in that which we expect to have come to us or in that which we intend to give to others. A decision on that point lies strictly within ones own self. We believe in Christmas, we look forward to it in a personal way, and we urge it on others from every intimate and business standpoint. And yet some men in business, although considering seasonable trade, forget that they must force a bigger and greater broadcasting influence at this time of the year more than any other period.

There is universal general competition. Many another fellow in other lines has been out after the Christmas dollars early and he may have gotten some of them up to now, but it is not too late to stop and think whether he has gathered in more than his share. There are a lot more yet to be spent.

Electragnists, attention! This has been the first year when there has been any real showing of the electric homes

in various cities. Every housewife in the cities of these magnetic displays may not be able to equip her present abode with all the recommended electrical facilities, but each one of these exhibits has instilled in many active minds a desire for some one or several of the devices which tend to reduce household drudgery.

If there has not been installed an electric home in your city, stop to ask yourself why not? Then go ahead and make your own store as nearly like one as it is possible to be in the short time left, always remembering that business is not going to die a sudden death right after Christmas.

You of the progressives do not need a warning. You of the slower going fraternity perhaps need a jacking. The time is not yet too late to begin on a Christmas campaign. The public loves Christmas. The old, the young, the scoffers and enthusiasts, all these outwardly or inwardly long for a chance to express an innate naturalness. There is a universality in the Christmas spirit.

The green and red berries of the holly, the clear chalky whiteness of the waxy mistletoe, and the yellow flare of the Christmas candles mark with colorful strongness a maintenance of time worn customs identifying a festival which never loses charm. Time was when this festival was only marked with color, music and feasting. Modernity has lent to these an additional form, that of substantial gift giving.

The most modern of purveyors to the educated comfort seeker is the electragerist and this is the season for quick sales. With wares of established merit and a continued standard of quality and service there will be a stabilization of general electrical business as a follow up to the season's rush.

Your Christmas business is entirely up to you. The public is wanting—needing—demanding electrical commodities. "Dust, clean, sweep, and bake," as the old New England housewife used to say. This is literally applicable to the salesroom of the electragerist. Get ready quickly for the holiday spirit is already abroad in the land. You have an equal chance for everybody's business and the merriest Christmas is the busiest.

Here's a Merry and a Busy Christmas to Electragerists!

Electric Leagues

Much talk is being indulged in concerning the formation of electric leagues throughout the United States and Canada. The idea is commendable. It should have the endorsement and the encouragement of everyone in any way connected with the electrical industry. But when the league is formed, see to it that at least four of the essential branches of the industry are solidly represented—central stations, contractors, jobbers, and manufacturers.

This cannot well be accomplished unless each of the four groups are harmoniously working together separately and outside of the league. The jobbing interests must be in harmony; the manufacturers must be competing fairly; the central station must have definitely settled cooperative policies; and the electrical contractors, both large and small must be in accord in their separate groups. The successful league cannot enter into disputes between the various interests; it must not attempt to teach its members how to conduct their business; it must not try to regulate dis-

counts; it should not be expected to bring more customers to a member's door.

Properly functioning, the electric league accomplishes its purpose when it brings the various groups together to create an increased demand for electricity from the public. Then every member of the league has the opportunity of getting what belongs to him.

The establishment of an electric league in a locality is the best reason in the world for the contractor-dealers in that locality to get together and solidly organize themselves. For when the league begins to function, the problems begin to increase. Both large and small contractors then have need for each other. They must come together to work out their problems. And they should affiliate with the Association of Electragerists in order to perfect their tie in with the electrical industry as a whole—nationally, internationally, and universally.

The Electragerist Slogan

Never was there a time when slogans were not used to impress people with the individuality of a certain thing. Originally a slogan was a war cry. This was before commercial competition began. When civilization became sufficiently advanced to warrant buying and selling in the world, slogans were used to denote the superiority, the distinction, the individuality of that which was marketed.

The word Electragerist is not exactly a slogan in the accepted sense of the term. But its meaning in the eyes of the public makes it so, and therefore it should be immediately adopted by the trade universally. For only through concerted action at the outset by all interests concerned can the use of any slogan be expected to receive the most favorable response from the great mass of people which we call the public.

The advantages of the word are obvious. In the past it has been impossible to distinguish between the competent and the incompetent in things electrical. Buying an electrical service was nothing more or less than buying a mechanical operation from a workman who used tools to wire the house that would make possible electric lights and perhaps the use of an appliance or two.

It was not realized that the buying of an electrical service involves just as much business risk as the buying of a ready cut building to be made into a satisfactory residence. Nobody would think of building a home with the materials purchased from an unknown manufacturer and put up by an unknown builder, much less a carpenter. Why then has not the same precaution been taken in the purchase of electric service?

The answer is apparent. So long as everybody connected with the industry was known as an electrician, no remedy in the matter was forthcoming.

Through the Electragerist slogan the way is opened for every electrical contractor-dealer to gain proper recognition. If he is an Electragerist the public knows he can be depended upon to give safety, service and satisfaction in every electrical operation.

What is needed in order to bring a just reward to Electragerists by thus designating themselves is that all in the business who are eligible may quickly qualify and become identified with the forward movement.

Spontaneous adoption of the Electragist slogan now by the contractor-dealer branch of the electrical industry will do more than perhaps any other one thing to influence the public's support and goodwill toward all things electric. And thus will result more sales of wiring, of motors, of devices, and of appliances, large and small.

Join your Association and become a full fledged Electragist!

Meet Mister Moss

Announcements are made in other sections of this issue that "The Awakening of Mr. Moss," the farce which created so much merriment at the Cincinnati convention, is now being written in story form and is to be released in these pages.

Many examples there are of the dramatizing of popular

novels, but this is the first instance of a drama being novelized, and those who witnessed the splendid performance of the "farce founded on facts" at the convention last October will await with interest its production in story form.

O. C. Small and T. L. Chantler of the Society for Electrical Development are the playwrights, and the latter is doing the storyizing. The text follows the plot of the play, in which Mr. Moss, an alleged contractor-dealer, is about to slip over the brink of business disaster. One day he awakes to find that success awaits him if he will make the supreme effort. He immediately shifts to high and breaks all speed regulations. How he does it, as they say in the serials, is told in the concluding chapters.

"The awakening of Mr. Moss" will begin in our January issue, with a Happy New Year start. Do not fail to read the first installment, which will assure your following it up with intense interest.

The Supply Jobber and the Electragist

By W. R. HERSTEIN

Their Mutual Obligations Were Explained by This Memphis Jobber in an Address Before the Cincinnati Convention

It is unfortunate that the electrical industry has no well recognized common ground upon which all its subdivisions can meet. The manufacturers, the central stations, the jobbers and the electragists all have their separate organizations.

Once upon a time we did have an organization which was known to the entire industry as the Jovians. The Jovian league fell through for reasons which were probably sound and which probably made its fall inevitable, but it had some elements of good in it, not the least of which was the fact that it did offer a common meeting ground for all of us wherever each division of the business stood upon an equal footing.

The nearest approach to that today I believe is the Society for Electrical Development. This I understand is a nonpartisan organization, and as far as I can see it ought to have the support of all four branches of the industry, and I believe it does.

I think the central stations and the manufacturers support the Society very liberally. The jobbers are not so liberal. I don't know to just what extent the electragists support the Society but I should say that it is deserving of the support of all of us because I believe it will ultimately form the neutral and common ground upon which all the divisions of the industry can meet.

And now to get to my subject.

First the obligation of the jobber to

the electragist. As I conceive it, the prime obligation of the jobber is—his real excuse for being in business—is to carry a stock of goods. I believe that whatever else a jobber may do, that is the first obligation resting upon him.

And here a real jobber differentiates himself from certain kinds of businesses

is simply more or less a commission merchant.

I believe the jobber ought to differentiate himself from that character of business man, and I believe the electragist ought to help him do it.

I believe the jobber also should differentiate himself from the large contractor, or the large retailer who sometimes calls himself a jobber. That I believe is the first obligation of the jobber to the trade—to be a real jobber.

After that of course follows his trained corps of traveling salesmen, and certain other functions that he takes up.

I should say that the real jobber should have his men visit his trade just as often as possible. I believe the development of the business depends largely upon the close contact maintained between the jobber's salesman and his customers. The jobber's salesman should make it a point, in addition to the efforts of the trade papers, which are excellent, to keep his trade in constant touch with the development of the science and the industry.

Careful Whom He Visits

I believe too—and here is where a great many jobbers differ with me—that the jobber's salesman should be very careful who he visits. We have a lot of dealers say to us: "We would like to give you our lamp contract again. We would like to refrain from taking it away from you. We have had it with you for a good many years, but So and



W. R. Herstein

which are more or less parasites on our industry.

I think that the jobber who is true to his trade should differentiate himself by means of his stock from the jobber who carries only the staples of the industry, and who does not pretend to give service on the entire line, and who

So has a salesman who says that he can deliver to us a lot of Form E contracts, if we will give them our lamp business, and it looks like a pretty good opportunity. We need all the business we can get. We want to build up our lamp business, and this party is offering to help us do it."

Well I say to those men, "That is fine, but what business has this jobber's salesman visiting your customers? Why doesn't he confine his sales to you? Why is he visiting your customers, if he is a jobber and not a retailer? And if he does visit your customers how much business does he give you and how much does he keep himself?"

I say to you that it is a very dangerous thing in my opinion to have the jobber's salesman visiting your customers unless you are in his company, because once you introduce him to your trade the chances are that the acquaintance is going to ripen and before long you will find that the jobber's salesman is not giving you your fair proportion of the business which I think should be a hundred percent.

In another respect the jobber can assist the contractor very largely, and that is in the capacity of banker. The jobber doesn't always want to do it. Sometimes he has to go in deeper than he wants to, but it is a necessary function of the jobber. The jobber should be prepared to assist you in that respect, to whatever degree you can legitimately require his assistance.

We often are accused of starting new contractors in business; that we become bankers for men without capital. It is said that we start curbstoners in the business. Perhaps we do. But there possibly was a time when a great many of you men were curbstoners yourselves—if you will pardon the expression. We never know who is going to make good and who is not. We find that almost everyone of our good customers has started out with little or no capital.

I think it is the legitimate function of the jobber to take a chance—a reasonable chance—with a man who has little capital.

In the granting of credit, credit men and bankers usually take into consideration three things. The first of all is capital. The second is character; and the third is ability.

If a man has capital he is entitled to a certain line of credit without much regard to his character or ability, because for the time being he is safe.

If he has no capital but has character and ability, a jobber is justified in giving him a certain amount of credit and I think the chances are nine out of ten—maybe not so many—that the dealer will make good. He doesn't always develop into a captain of industry, but I believe that the majority of contractors—and good sized contractors too—get their start in that way.

Should Not Compete With Customer

Now the jobber has another obligation to the dealer. I touched upon it a little while ago. And that is that the jobber should not go into competition with his customer.

We cannot hope to get business in every town. The line of demarkation between wholesale and retail business is very indistinct, particularly in towns where the industrials are large and important.

Your chairman said that I made a practice of dealing only with the Electragists. I should add to that, with the central stations. But that has been largely my good fortune, and not perhaps because of any very high minded principles.

In my own town where the industrials amount to very little I can afford to ignore the business. Any good sized contractor in my town can handle the business of any industrial in that town. And I am more than glad to let him do it, because it makes the securing of business much less expensive to us, and it encourages him to become a better merchant.

In large towns we always frankly admit that there are customers whom a contractor-dealer or a retailer cannot handle. They can only be handled by the jobber.

The great difficulty lies in defining who is to be handled by the jobber and who is to be left to the retailer, but it seems to me that in this town, as well as in towns similarly situated, there should be enough cohesion between the electrical interests to solve that problem at least fairly satisfactorily without getting the whole situation messed up and getting everybody sore on everybody else. I have no doubt that it is done in a great many towns.

The big point, however, is that if I was a jobber in a town of that kind I would say that the big idea with me would be not to get into competition with Mr. Contractor-Dealer who is my customer. The contractor-dealer is al-

ways a good customer; he buys liberally; he buys every month in the year; he buys every day in the year, and he is entitled to consideration.

I know that the theory has been propounded, has met with considerable headway, and is backed by considerable authority, that so long as proper prices and differentials are observed anybody is at liberty to go after the business. But my practical experience has been that if I take the business away from one of my customers he is going to be sore even though I do get the same price that he would have received. And I think he has a right to be sore. Consequently I say that one of the cardinal principles of the jobbers' code of ethics should be "You must not sell your customers' customers; you must not go into competition with your own customers."

Well someone comes along and says: "What do you do in towns where you don't get any business?" Take a town for instance in Mississippi where we get very little business, and where there are some pretty good sized cotton mills and some good sized cotton seed oil mills. We have been hammering away at this town for years and years, and we haven't made much of a dent in the situation because some other jobber has beaten us to it, and he has the cream of the trade. He takes care of it properly and is entitled to the business.

We don't depart from our general policy, for that reason. We say frankly that we don't expect to get business in every town, or from every customer.

If we get enough business to keep us going, and show a little profit at the end of the year, we are justified in maintaining our policy, and where we are up against a stone wall we simply recognize that fact and don't disturb the situation. This method makes better friends of our own customers.

Some day in that town something may happen. The crack salesman who has been getting that business all the time may die. I would hate to see him do that, but it is possible. The jobbing house that has been getting that business may go out of business. We are simply paving the way so that if that ever does occur we will fall heir to the business. If it does not occur we haven't lost much, and we have stuck to our policy.

Electragist's Obligation to Jobber

Now on the other hand are there any corresponding obligations on the

part of the contractor to the jobber? In other words, has the jobber any rights which the contractor is bound to respect?

In the first place I should say that the main thing that the jobber can insist upon the contractor's doing is to furnish him an adequate outlet for the jobber—if not for this jobber then for some other jobber.

You gentlemen ought to see to it that we are not forced to go outside of the electrical industry to get the business. You have had that hammered into you a great many times. The question as to whether the electrical contractor can ever be an electrical merchant is a mooted question with a great many people. It is not with me.

I have seen too many electrical contractors turn into first class merchants to have any idea that it can't be done. I don't say that every one can do it, but as many electrical contractors can develop into first class electrical merchants as ribbon counter salesmen can develop into heads of department stores. You can do it. It should be your business. I think that the electrical jobber ought to help you with it just as much as possible.

I think that the electrical jobber has his own axe to grind in that case, because it is easy to do business with the electrical dealer. It is not easy to do business with the department store or the hardware store or the drug store. We speak the electrical contractor-dealer's language. The other people, the non electrical people, speak a different language.

I had a prominent department store man come to me not long ago, and he said: "Why don't you sell me fans? We would like to handle your fans. My boss has sent me out to see you about it." I said to him: "If your boss cut your salary in half, would you work for him?" Of course he said he would not. "Well that is exactly my fix. Your boss wants to buy my goods at just about half the profit to me that I can get from the electrical contractors, and he won't buy from me unless I do come down to that point. He is a hard buyer. He wants to buy too cheaply. He has a purchasing agent who could give me cards and spades and beat me at my own game. You people won't buy my goods unless you can get a better price than my best price to my regular dealers. Years ago I started the policy to sell to the electrical dealers only. I found you

wouldn't pay enough and I went and got me a new boss, and I am very well satisfied with him."

When Jobber Digs Own Grave

I think the electrical jobber is in that fix. When he goes to sell these different buyers he has got to give the best price possible. When he teaches the hardware store, the drug store and the dry-goods store the electrical merchandising business, the next thing he knows he will be dragged into the general electrical merchandising business himself. He is simply building up competition for himself; he is digging his own grave, when he persuades the non-electrical dealer to go into the business.

Now as I said this is only one man's viewpoint and I know I am not in accord with a great many other jobbers. The situation in different cities may be different, but I have stated my solemn conviction and my honest judgment after years of experience in this business. Whether I am right or wrong I believe that the sooner the jobbers come to look at the situation from that standpoint, the better off they will be—and the better off will be not only the jobber, not only the electrical contractor, not only the central station, but the entire electrical industry, and the public as well.

There is another obligation, it seems to me, that the jobber can claim from the contractor.

If you want us to do business with you exclusively you ought to do business with us exclusively.

The trend of trade I think in this country is from the manufacturer to the jobber, from the jobber to the retailer, and from the retailer to the consumer. If you don't want the jobber to jump over your heads and go to the consumer to sell his goods, I don't believe you should jump over the jobber's head and go to the manufacturer to buy your goods, unless you have a mighty good reason for doing so.

As I said before this is a game of give and take. Those of you who buy from the manufacturer direct, don't get a much better price than you do from us. The jobbers' profit on the goods they handle is very small. It is more than overbalanced by the service they give you. The jobber could sell at a much larger profit if he chose to go into the retail business, but he prefers to sell to you. You cannot buy very much cheaper by going over the jobbers' head to the manufacturer than you

would be able to buy from the jobbers direct.

I have seen the time when the sale of a hundred thousand feet of No. 14 rubber covered wire depended upon the difference in price of ten cents a thousand feet. There is ten dollars that a contractor might save on five hundred or seven hundred dollars worth of business.

I ask you is it worth it? Haven't you really lost more than ten dollars, if you pass up the jobber when he is trying to play fair with you? I say that you have.

I believe that if you would realize that it is a game of give and take, and if you would give us a little bit you would take a whole lot more.

The same thing holds good in regard to trading with your local or your territorial jobber. I believe that for the sake of peace in the industry you ought to try to keep your business as much at home as possible. You ought to encourage your home jobbers to become bigger jobbers. You ought not to force them to remain small all their lives. I believe that an enterprising, up-to-date jobber in a town or in a territory is an asset to every contractor-dealer in that territory.

Another thing: I wonder if many of you have taken the trouble recently to compare the prices of the old line jobbing house with those of the mail order houses?

For my own information I made that comparison with the prices of my own house and those of a sort of a combination or composite of all the legitimate jobbers that we have in our territory. I compared our prices with those of two of the mail order houses in St. Louis and a mail order or cash house in Chicago, and I was very much surprised to find that our prices were just as good as theirs, and in the majority of cases better, and I believe that if any of you would take the trouble to compare the prices of your own home town jobbers with those that are published in the bulletins of the cash or mail orders houses, you would find that the situation is the same as in my own.

I am saying that not for the purpose of solociting business, but to simply tell you that you will fare better if you play the game with your own home town jobber. Make your own home organization as compact and complete as you can, and don't dig away the foundations of your own situation by sending

your business away off, through the ignorant belief that you are doing yourself a big favor in doing so.

One other thing I would like to say: Remember that the jobber has feelings. Some of you sometimes find it necessary to call a jobber down good and hard, if he does something that you don't think he should do. Maybe you send in an order for an electric fan, and instead of shipping you a fan, he ships you a motor—things like that—just inexcusable things. You take occasion to come back at the jobber pretty hard for that sort of thing. I think some of you write letters that you wouldn't like to get yourselves. Maybe his credit man sends you a letter which sounds a little bit too personal, and possibly if the jobber had read the letter himself first he would not have allowed it to be sent. Maybe it is a letter that he ought to have written you, but you don't receive it in that frame of mind.

Make Punishment Fit Crime

Some of my views are very largely influenced by the character of mail that comes into the office, and that sort of mail doesn't make for better feeling. I think that if you feel the jobber has got a call down coming to him and you are the one to do it, it would be a good idea sometimes to write him a letter and make it as hot as you want to, put it in an envelope, address it, lay it aside, and the next morning read it again. Maybe you will then feel differently.

Then again if you feel that the jobber has got that coming to him, for something that he has done, in the words of the old Gilbert and Sullivan opera, try to make the punishment fit the crime. Just because he is back orders on lamps, don't take the lamp business away from him; don't get sore and fly off the handle. Remember he is just human.

There is one other obligation that the contractor I think owes the jobber. I expect by this time you are thinking that the contractor owes the jobber all he has got, and probably more. But I would say that one of the duties of the contractor to the jobber is to collect his bills promptly. This thing of holding up the jobber can be carried to excess sometimes. I know it is pretty hard to go to your favorite customer and make him pay his bill. We have a great many contractors write in to us and say: "I can't pay my bills, because so and so, a good customer, owes me a lot of money, and I don't like to ask him for it because he will get sore and will take his business away from me." We say to him, "Any customer that will get sore because you ask him for money that is due, is not a proper customer anyhow."

We have a rule in our house that we don't want a customer on our books who won't pay his bill when it is due, or when we ask him for it. We find the contractor's customers making the contractor carry his accounts too long with the jobbers.

I think a great many contractors look upon business as about fifty percent buying and fifty percent selling. They think that constitutes the electrical contracting business. It does not. I should say from my standpoint as a jobber that the contracting business consists of about twenty-five percent buying, twenty-five percent selling, and fifty percent collecting.

Money in the Bank

There is nothing that makes a fellow feel good like a fairly large bank balance. If you don't believe it try it. And for heaven's sake don't write back to a jobber who writes to you asking you to pay a past due bill, and say: "I can't pay you because I have been too busy to make collections."

I think there are some mutual obligations that we owe to ourselves—that we as electrical men owe to ourselves by being engaged in the same industry.

One of those obligations is the making of money out of our business. Nobody is going to thank you if you work all your life and wind up with your family going to the poorhouse.

No town in the world is better off for having had a bankrupt contractor in its midst. Every town would be better off if it had competent, responsible, and financially responsible contractors. You do a favor to the town, you make your town a better town, if you make money.

Let us make money out of our business.

Making It an Electrical Christmas

BY W. B. STODDARD

There Are Many Different Ideas You Can Bring Into Play to Get Your Message Across

The housewife appreciates anything that will lighten her labors and there is nothing that takes so much work off her shoulders as the electric appliances that sweep, wash clothes, cook, wash dishes, and in fact do the work of two servants without pay. The electric companies should all therefore have started a campaign long since to induce the buying of electric conveniences for Christmas.

The Union Electric Company of St. Louis, Mo., started its campaign in October, with a plentitude of newspaper advertising, each of the ads being given a holiday aspect by a background of Christmas trees, wreaths of holly, and the like. One of the best showed a

woman standing near a big Christmas tree, with an electric washer in front of her, while the ad was captioned:

THE CHRISTMAS GIFT SUPREME

*and the useful gift for wife or
mother is an*

ELECTRIC WASHER

*Order your Washing Machine
NOW for Christmas Delivery.*

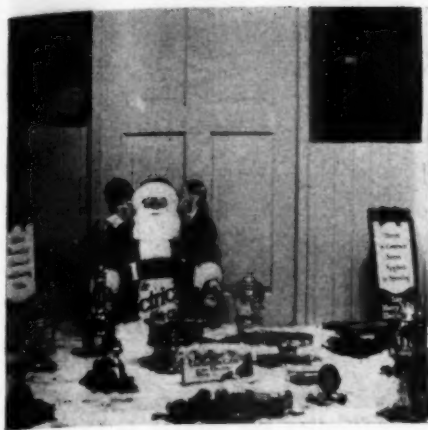
Down south, the N. O. Railway & Light Company, New Orleans, La., showed a vacuum cleaner with a big wreath of holly and evergreen attached to the handle, while the triple column ad was captioned:

A Gift Which Will Be Appreciated by Your Wife, Mother, or Sister

Order NOW for Christmas Delivery

For years, in the finest mansions in two continents, electric vacuum cleaners have been prolonging the beauty of the costliest rugs that have been woven. It beats—It sweeps—It cleans.

The most effective ad of all, however, was that of the F. A. Clarke Company, Los Angeles, Calif., which showed at the top a California bungalow and at the bottom a cut of its store, while in



Articles Display to Give Christmas Thought at a Glance

between were electric cleaner and washer. The ad was captioned:

Gladden Your Wife's Heart, Man, With a Gift That Counts

The nickels and dimes spent on a useless trinket will buy a labor saving electrical household appliance such as a washing machine or vacuum cleaner. You men should learn the true value of these Godsend to your women folk. Investigate how they save labor; how they reduce your laundry and cleaning bills; how they take from your wife the back breaking drudgery that make her old before her time. Do this, and then gladden her heart with a Christmas Gift that will lighten her labors.

A small deposit down will hold any appliance until Christmas, and terms to suit your convenience may be arranged.

When it comes to making a display everything should suggest Christmas. Above all, there should be a tree, so that electric gifts may become linked with it in the minds of all. Even the largest and most practical of appliances take on a festive air when thus displayed. One of the best examples of this is the Whirlpool Manufacturing Company, Philadelphia, who had the rear of their store hung with ropes of red, and caught up with clusters of holly and mistletoe. At one side was a Christmas tree reaching to the top of the window, laden down with garlands of tinsel, gay ornaments of every description, and studded from top to bottom with electric bulbs of different hues.

Sprays of holly were scattered over the floor, in the midst of which were drum, doll, and other childish toys. Down front was an electric washer in operation, the white churning suds fitting in nicely with the light and color. At the base close to the glass was an art card which advised:

Here Is a Gift That Will Be Appreciated and Used Every Day of This Year, and For Many Years to Come.

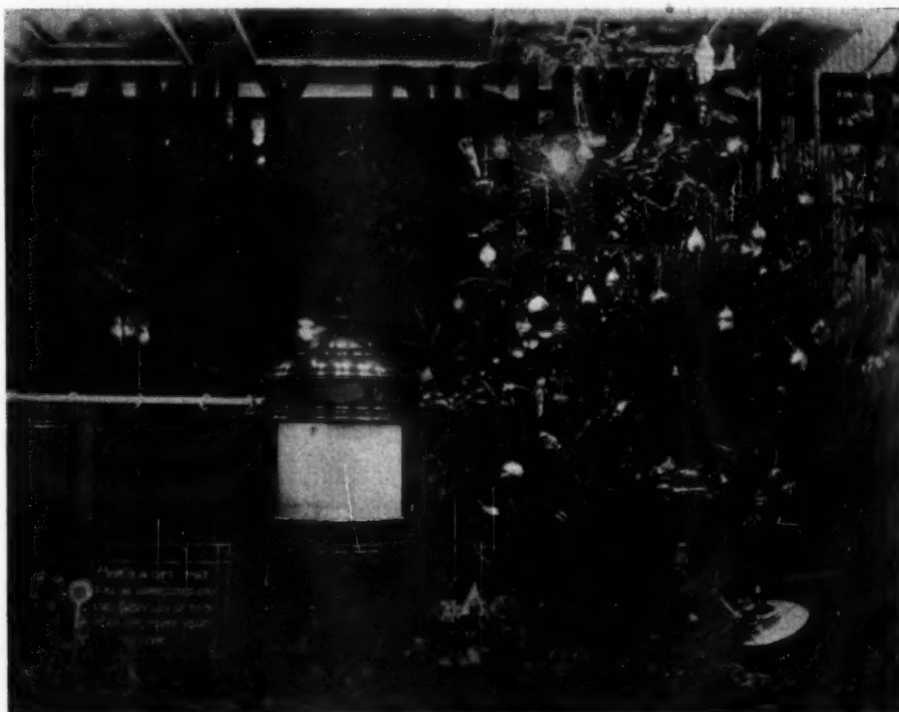
But there are many smaller appliances which because of their lesser cost make a far wider appeal to the prospective giver. The average electric store has something that will appeal to most every member of the family. Take the college boy and girl, or the man or woman living in bachelor apartments—all of these would appreciate an electric convenience. The ad of the Union Electric Company, St. Louis, while aimed at the girl could, with the substitution of a flash light and shaving set for the curling iron, apply with equal force to the boy. This ad had the border composed of electric conveniences:

WHEN SHE GOES AWAY TO SCHOOL

There are lots of electrical devices that will make lovely and useful gifts. An electric percolator or teapot for her parties or her own housekeeping.

A waffle iron or breakfast grill or a toaster for her breakfast preparation. A beautiful lamp for her room, to add the touch of home and give the correct light for study. An electric curling iron, or massage machine, or hair dryer.

All of these gifts can be worked up into capital displays. The Philadelphia Electric Company, Philadelphia, Pa., conducted a Gifts for the Entire Family campaign. It issued a little booklet suggesting appropriate electrical gifts for each member, from the milk warmer for the baby to the warming pad for grandfather, including toy trains for the boy and miniature stoves for the girl, all sorts of table and toilet appliances for youths and maidens, and both table and household appliances for the wives, sisters, aunts, mothers and sweethearts. It supplemented this with a most attractive idea, carrying out the thought of their campaign. The scene represented was that of a living room, with a big fire place through which Santa Claus might come. On the mantel were two shaded electric lamps, and a large bust of Santa, with the suggestion, "Give an Electrical Gift This Christmas." At one side stood a tall Christmas tree, lighted with electric bulbs, and hung with tinsel, toys and novelties of all kinds. A card near the base advised:



Showing How a Display Embodying a Christmas Tree Radiates a Distinctive Message of Selling Value

SAFETY FIRST

Discard the dangerous candles. Light the tree with the safe and sane electric bulbs—which present an even gayer and more festive appearance—and guard the lives of the little ones.

At the other side was a big arm chair drawn close to a table on which was an electric reading lamp. On a dais covered with velvet, in front of the fireplace was a student lamp, percolator, samovar, and chocolate set, while down front were iron, toaster, grill, shaving set, flashlight and vibrator. Piled against the wall and tumbling over the floor were packages of all sizes, wrapped in white, tied with red ribbons.

Attached to each was a card, with a spray of holly, on which was written "Father," "Mother," "Aunt Clara," "Uncle John," "Tom," "Mollie" and "Baby." The size and shape of the package frequently gave a hint as to the contents, but as a guide for those desiring to make purchases a list of appropriate gifts for each member of the family was printed on a card and placed in the extreme corner, where it could be seen by all who entered the store as well as by those passing by.

A somewhat similar display, although more emphasis was laid on juvenile electric gifts, was arranged by J. F. Buchannon, Philadelphia. In this case there was a border of artificial icicles all around the upper part of the display,

while there was a big Christmas tree at one side and a wide fire place at the other. The tree was brilliantly lighted with electric bulbs, and at the opposite side a basket with high handle had the latter twined with greens and electric bulbs.

The floor was entirely covered with white cotton wadding to represent snow, and had a low stake and rider fence all around it. There were electric trains and electric light posts, little electric stoves, flash lights, vibrators, heaters, boudoir and study lamps and a card on the mantel bordered with holly, suggested "Useful Holiday Gifts."

For the dealer who wants a clear cut display that will make all who see it think of Christmas and gifts is recommended the window of Stuart C. Irby, Jackson, Miss. The floor was covered with cotton wadding to simulate snow and in the rear was a half length cutout of Santa, with a man and woman whispering into his ear what they desired for Christmas. On little mounds of black velvet were flash lights, toasters, waffle irons, grills, caraffes, irons, percolators and samovars. A card in the midst advised: "Buy Your Christmas Gifts at an Electric Shop."

Very artistic signs were made by attaching white cards to slabs of birch bark by means of red ribbons. Cut into each piece of bark were the words "Say 'Merry Christmas' Electrically," while on the cards were printed "Thrift Is Common Sense Applied to Spending,"



Demonstrating the Manner to Emphasize Juvenile Gifts

and "Select Beautiful, Practical and Lasting Gifts."

Don't Neglect the Movies

The movies should not be neglected when it comes to advertising electrical goods, for they are attended by young and old. The mere slogan "Make It an Electrical Gift This Christmas" flashed on the screen night after night together with the name of the firm, is bound to make an impression upon the audience, most of whom are beginning to think of what they shall buy. About the first of December it is well to change this to something more definite, flashing suggestions as to what to get for father, mother, sister and brother.

Such a suggestion is bound to have effect, and when the man or woman drops into theatres, due to the screen suggestion, he or she should find the expectations more than realized. This means not only attractive Christmas windows, but a store decked with holly and evergreen with colored lights and Christmas tree, and with cases near the door filled with the gifts suggested by the slides.

There should be plenty of holly paper boxes and red ribbons, so that the gift be made as festive as possible, and plenty of cards should be provided so that the customer can write his name and any little message he desires to send. There should also be demonstrations of vacuum cleaners and washing machines going on all the time—as in this way the attention of many who have come in to buy some little table appliance will be gained, and the foundation laid for the purchase of one of these at a later date. In short the atmosphere of the store should be that of a busy, light, colorful establishment, and one with the true Christmas spirit, which means courtesy to all regardless of whether they are lookers or buyers.



How to Arrange an Enticing Christmas Display Conveying the Idea That Electric Gifts are for the Entire Family

Selling the Electric Idea to the Ladies

By ALICE CARROLL

Be Patient and Courteous Warns Staff Member of S. E. D. to the Convention at Cincinnati

In my opinion a salesman to be a success in selling to women must possess two prime qualifications, namely *patience* and *personality*.

When I emphasize the necessity for patience in selling to women I don't want you to think for one moment that I am casting aspersions on their intelligence. The average woman is just as intelligent as the average man, but she is not naturally mechanically minded. She does not understand the technicalities of short circuiting, grounding and battery charging with which so many of you electrical men bombard her when she goes into your store, any more than you would understand the intricacies of of hemstitching and fine needlework.

The salesman has an obligation when selling appliances to women to explain not only what the machine will do but why and how it does it. Otherwise he sells the appliance without selling the idea and you all know the number of appliances that are dust covered and relegated to garret or cellar just because some salesman was over anxious to make a sale.

An appliance may have great potential efficiency but its actual efficiency depends upon the manner in which it is operated. Take an ironing machine for instance. Unless clothes are folded and ready to be run through the ironer as soon as it is heated up it is not being operated economically or intelligently. If a woman heats up the ironer and runs a few pieces through, then takes a nap or reads a book for an hour and heats it up again and runs a few more pieces through, and so on, the machine is not going to prove a time saver, a labor saver, or a money saver. At the end of the month she is almost sure to kick about her current bill and tell all her friends how expensive it is to operate an electric ironer and how unsatisfactory it is.

It is the duty of the salesman therefore to demonstrate the appliance so completely and so thoroughly that the idea is sold along with the machine. It has been said that an electric appliance salesman is responsible for the question, "Are women people?" And really when you hear the exper-

iences of some salesmen the question is not surprising.

Just the other day I learned about a woman who purchased a vacuum cleaner in a store downtown. She saw it demonstrated—at least she stood on the side lines while the salesman ran it up and down over a piece of carpet, and impressed her with its usefulness. She bought the cleaner and had it sent out to her home. The next day when



Alice Carroll

she connected it in her own quiet little sitting room she was panic struck when the motor began to whirl and the bag became inflated. She dashed out of the house and got the gardener from next door to come in and turn it off.

Now I contend that it was not enough for the salesman to personally demonstrate the cleaner—he should have insisted upon the woman trying it herself and the demonstration should have been made in a quiet part of the store so that the noise of the motor would be no novelty to the woman when she connected it in her own home.

I recently talked with a woman who simply could not get it through her head that it was the water and not the dishes that moved in an electric dishwasher. To her an electric dishwasher was a tub of some sort in which the dishes were stacked at random and which turned upside down and backwards and forwards

as soon as the current was turned on, with an assured breakage of from one to a dozen pieces at each operation.

Thought Soap and Water Not Needed

The story is also told of a woman who bought a washing machine after a store demonstration. She had it sent out to her home, and like the man in the hotel who could hardly wait for Saturday night so he could take a bath in the tiled bath-room, this woman could hardly wait until Monday morning to do her washing. She connected the machine, put in the clothes and turned on the current but after running it for about fifteen minutes the clothes were in the same condition as when they were put in the washer.

She telephoned the dealer and he agreed to come out and look the machine over. He made sure that it was connected properly, oiled the motor and departed with the assurance that she would have no further trouble. So the woman put the clothes in the machine again and turned on the current, but after ten minutes the clothes were still just as dirty as when she started.

So she called the salesman up and he came out again. He couldn't find anything wrong with the machine so he told her to go ahead and do her washing and he would stay and see just how the machine acted. And to his amazement she put the clothes in the machine and set it in operation without putting in a drop of water or soap. When he remonstrated with her she exclaimed "Soap and Water! Why I thought you said this machine washed electrically!"

So you see, gentlemen, I have a keen appreciation of what you are up against but it does not lessen your obligation to the industry or to your customer. Much of this difficulty could be corrected if selling were done in the home atmosphere. This does not necessarily mean a house-to-house canvass—it is not always convenient to carry an ironing machine or a washer from door to door—but it should be possible to set aside a portion of your store or show room to be fitted up as laundry, kitchen, or boudoir, as the case may be.

It may be difficult to sell a woman a curling iron over a counter strewn with flashlights and portable heaters, but if you could show her into a secluded corner of your store, fitted up with wicker furniture, cretonne cushions and a well appointed dressing table, where she could take off her wraps and try the iron out on her own truant locks, you would be pretty sure to sell her not only the curling iron, but a vibrator, hair dryer and violet ray outfit as well.

A salesman may talk for hours about the marvels of the kitchen motor but unless a woman can try it out in a kitchen atmosphere and prove to her own satisfaction that it grinds meat, sharpens knives, freezes ice cream and beats eggs, she is not entirely sold on the appliance even though she may agree to purchase it.

Likewise it has been shown that the ideal way to sell an electric sewing machine is to invite women to bring their sewing down to the store and use an electric machine for an hour or two. And don't fail to demonstrate the attachments. Many sewing machine manufacturers have overlooked this obligation, and it gives you electrical men a chance to capitalize. Teach women to tuck, hem and ruffle on the electric sewing machine and they will never be satisfied with any other.

Modern Woman Knows About Science

Much depends of course upon the type of woman you have to deal with. Take the modern young matron for instance. She is usually a college graduate or has been to a finishing school where she has studied home economics or household science. You do not have to sell her the electric idea. She knows all about it. She knows that electricity in the household means shorter hours in the kitchen, more efficient housekeeping, and more time for her children, books, art or the country club, as her choice may be.

It is this young woman who comes into your store and asks for a newly advertised appliance before you have had a chance to stock it. As I said before, you do not have to sell her the electric idea—she is already sold—but it is to your advantage to cultivate her acquaintance because of her influence in the community.

But there is another type of woman to whom we must sell appliances—the type of woman who needs them most and who is almost the last to get them. I refer to the unselfish mother type of

woman. The woman who is willing to go on day after day, year after year, washing and scrubbing and cleaning the hardest way in order that her children may have more of the luxuries and comforts of life. It is because of these unselfish women that there are eight million automobiles in use today and only two million washing machines and twelve million phonographs and only three million vacuum cleaners.

And strange to say it is almost impossible to sell these women direct. The appeal must be made through their children or husbands. It is usually only thoughtlessness on the part of the young folks, and a clever salesman should be able to handle the situation to the advantage of all concerned. This is a most fitting season of the year to promote a campaign to sell these women—the Christmas Season. Why not feature "A Christmas Present for Mother" campaign, making the appeal through the children?

Now as to making the appeal through the husband: What little experience I have had with husbands—I find them willing and anxious to have their wives use the various appliances. I have talked with two or three men who say that they have sent home all kinds of labor savers and their wives just won't use them. You know there are some women who seem to enjoy doing things the hardest way. Women who glory in the fact that they do all their own work and do it without the aid of any labor savers. There is really nothing we can do for this type woman. If she is just stubborn and unprogressive, we may as well let her enjoy her drudgery—but don't blame her husband for not bringing her to the convention.

Servant Problem Greatest of All

And now we must consider the woman who leaves the conduct of her home almost exclusively to servants. This woman will tell you that she has a washing machine, vacuum cleaner, ironer, etc., but that her servants don't care to use them and she doesn't insist.

Gentlemen, let me assure you that the greatest obstacle today toward the development of electricity in the household is the domestic servant. Whether it is ignorance, fear or indifference, the fact remains that the average domestic servant will not use appliances and she does everything in her power to discredit them.

Something has got to be done to over-

come this situation. The woman of the home must be appealed to and convinced that the electric way is the clean, quick, sanitary way and that her servants must be made to use the appliances. I don't know just what tactics you should employ to make good with the servant girl but she must be converted. Perhaps if you ask the policeman on the beat you can get some pointers—he never seems to have any trouble making good.

I have made it my business to interview a number of women who employ servants, and also the servants themselves. On the part of the woman of the house there is fear lest her servants will leave if she insists upon their using appliances. On the part of the servant I find it is usually a fear of electricity.

Once in a while, however, I find a servant who has used the appliances and understands and appreciates them, but she tells me that when she does her work the electric way she gets it done too quickly. If she washes, irons and cleans electrically, she is released in half the time, but her mistress instead of allowing her to benefit by the efficiency of the method invariably expects her to spend the extra time scrubbing the cellar steps or taking the children out in the park.

It is just such a situation that will tend to develop a technique of electrical housekeeping. By degrees a plan will be worked out whereby both employer and employe will benefit by doing it the electric way. Instead of having one afternoon off a week the servant will be given two, and the woman of the house in turn will find that her house is operated more efficiently and for less money than ever before. Thus the servant problem will be solved—not only by lessening the need for servants but by allowing them to work under more favorable conditions.

With a view to standardizing the technique of electrical housekeeping, the Society has been instrumental in the electrical equipment of "Home House" at Pratt Institute in Brooklyn, where young women students will live on a budget basis, using all the appliances from a curling iron to a dishwasher.

I said that patience and personality were prime qualifications in selling to women. The woman after all, gentlemen, is your best customer and it is well worth your while to develop an affable manner, an agreeable smile and an indulgent attitude toward fool questions.

in order to sell her the idea as well as the appliance.

Making More and Better Business

We have every reason to believe at the Society that More and Better Business is not only a slogan but a reality. As you know we send out a weekly news service to six hundred of the leading newspapers throughout the United States and Canada, featuring electricity as news, not as advertising, so you can perhaps imagine the value of the space it occupies.

I am free to admit that a year ago less than half of the papers were using this copy—but within the last few months our clipping bureaus have sent us most gratifying reports and it is safe to say that nearly all of the newspapers are now using this copy in whole or in part.

And not only that but they are clamoring for feature stories to tie up with special advertising campaigns.

Whenever the dealers in a community decide to put on a coöperative advertising campaign the newspapers of that community write to us for special copy

in addition to our regular weekly news service.

I presume that most of you are members of the Society, but whether you are or not, if the dealers in your community want to get together to put over an appliance campaign, get your newspaper editor to write to us and we will supply feature stories to tie in with your campaign. A special laundry series is already available—special cooking stories to tie in with electric range campaigns are also on hand and any number of home building stories are ready to be sent out on request.

I am afraid some of you are inclined to talk More and Better Business without actually believing it. This reminds me of an amusing incident which took place at the league meeting at Association Island in September. Those of you who were there will recall the white canvas sport hats we were given to wear with name plates across the front.

Well when a certain tall, lanky man arrived he could not find a hat to fit him. They were all too large. So he took the one issued and went down to the lake and dipped it in the water a

few times until it shrank to fit his head. That night I am told he lingered too long in the Black Cat Tent, or some such place, and when he awoke the next morning he had such a big head he could not get his hat on. Now if he had only been patient the day before and had not been in such a hurry to shrink it he would have saved himself much discomfort the balance of his stay at the Island.

Moral in Incident

It seems to me that there is a moral for us in this incident. Aren't we all in more or less of a hurry to shrink our hats—to talk more and better business but to embrace every opportunity to curtail and retrench?

I am sure more and better business is a reality. Nearly a million homes are under construction at the present time and women will be clamoring for the proper lighting and electrical equipment of these homes. Be prepared to meet their demands. Anticipate their needs—get some salesmen on the job with patience and personality and above all things, don't be in a hurry to shrink your hat.

Design and Engineering of Electric Feeders for Light and Power

BY WILLIAM J. SHORE, E. E.

Talk Given by Well Known Authority Before Meeting of Electrical Estimators' Association of Greater New York on October 23

An electric feeder properly speaking is an electric circuit run from a main source of power to some distant point where it is subdivided and furnished power for various other subfeeders which in turn run to other distributing points where the power is transmitted to the ultimate motor or light circuits.

We therefore have feeders for light, feeders for power, and feeders for light and power.

A lighting load consisting of electric light when in operation is an absolutely constant load, depending upon the number of sockets and the wattage of lamps in the sockets.

Therefore to obtain size of wires it will be necessary to total up the number of watts consumed, and knowing the voltage of the circuit, with the help of Ohm's well proven law, figure out the total amperage and then with the aid of the Underwriters and the city

Code determine the size of wire. This will vary depending on whether varnished cambric or rubber covered insulation is used.

Calculations for 2 wire 120 volt feeders will be:

$$\text{Amps equals } \frac{\text{Total Watts}}{\text{Voltage}}$$

Where a three wire feeder is in use

$$\text{Amps equals } \frac{\text{Total Watts}}{\text{Outside Voltage}}$$

The size of the neutral in all lighting feeders must be the same as both of the outside wires, for if the fuse on one leg blows the neutral would have to carry a load in amperes equal to the maximum carried by one of the outside wires.

In a great many instances there are no lighting fixtures installed and no sockets or lamps to count up. In that event we go back to first principles and

find out the total area to be covered, the use for which the space is to be adapted, and by consulting lighting handbooks we can determine the correct amount of lumens per square foot, the total amount of lumens required and then in turn the total amount of wattage necessary. From that we can obtain our figures for amperes.

Demand for More Outlets a Factor

So far everything has been simple and easily understood. But with the increased demand for convenience outlets and the increased use of electric floor lamps and heating devices, another problem comes up particularly in the case of large apartment houses.

There is no opportunity for diversification and around Christmas and New Year every outlet is put to use; and how should we figure on the capacity required?

A talk with Mr. Forsythe chief inspector, New York Board of Fire Underwriters, and Mr. Wynkoop, who is in charge of electrical inspection, City of New York, produced the following information, and I give it to you exactly as it was imparted to me:

The 660 watt rule is an anachronism owing to the diversity of appliances and the variation in capacities, and owing also to the extending use of convenience outlets. It is no longer fair to judge a circuit by the number of appliances which are or may be connected to it. The circuit is not actually "overloaded" until the current supplied by it exceeds the rated capacity of the wire.

It is impossible for either the contractor or the inspector or the occupant to predict the actual current. Dependence must therefore be placed on the fuse. The Association of Electricians has been insisting that a fairer and more frictionless method of judging circuit layouts shall be adopted; and its efforts seem about to bear fruit in the form of a recommendation that No. 23-d of the Code be amended in such a manner as to substitute for the 660 requirement one which will control the circuit layout in terms of a No. 14 wire, a 10 ampere fuse and a specified number of outlets.

The "outlet" will not take into account the number of sockets or the size of lamps on a fixture nor the rating of the portable appliances which is or may be connected to the convenience outlet. If the fuse holds, the circuit is not "overloaded." This is the proposal which A. Penn Denton, chairman of the Association's Code Committee, is to put before the Electrical Committee at its meeting in the middle of November.

Whether or not the risers for these branch circuits should be calculated on the basis of 6 amperes per circuit or 10 amperes per circuit has not been determined; but such a decision will ultimately have to be reached in order that contractors will be able to bid upon a definite calculation rather than upon guess work and reliance upon a lucky chance in getting a skimpy job approved.

While the change outlined above may seem radical, it ought readily to be appreciated by any contractor that his wrangles with inspection departments will drop about 40 to 50 percent as soon as the theoretical watts on a circuit is eliminated from the Code.

It will then be necessary for you to add to the lighting load in amperes this additional load in order that you may obtain correct wire and cable sizes.

Having settled the question of lighting feeders, we approach with caution and hesitation the question of power feeders. This phase of the feeder question has troubled more than one estimator and has given me three grey hairs.

Direct Current

120 volts-8 amperes per horsepower.

240 volts-4 amperes per horsepower.

Alternating Current

Here the question becomes more involved and a few words of explanation might serve to dispel the fog.

The alternating current motor requires any where from one and one-

half to three and one-half times full load current to start it and in the design of feeders this must be taken into consideration. We will not discuss single motor circuits as that is not within the province of this valuable treatise. We will only consider where two or more motors are to be fed.

The worst condition that may occur would be in the event that both motors were started simultaneously, but both the Underwriters and the city have been good enough to admit that such a condition is not apt to occur frequently enough to warrant a special ruling. Therefore they state the feeder must be



William J. Shore

sufficiently heavy to carry one motor operating at full load and then sufficient excess capacity to carry the starting load of the second motor. If there are more than two motors on a feeder the procedure to follow is thus:

Total up the entire horsepower, deduct therefrom the horsepower of the largest motor. Add up the total amperes of all these motors. This may be obtained from the nameplate or the manufacturers' data book. Add to this total of amperes, the starting amperes required by the largest motor and use this result to determine the size conductor required.

Two conductors in a single phase system, three conductors in a three phase system, four conductors in a 4 wire two phase system will all be the same size in each particular system. Except however, the neutral in a two phase, three wire system which must carry 1.41 times the current carried in the other two conductors.

Starting current for single phase motors is about $2\frac{1}{2}$ times full load running current. Starting current for two and three phase motors thrown across the line without compensators is five to six times full load, running current.

Starting current for two and three phase

motors started with compensators is $2\frac{1}{2}$ times full load running current.

Self-starting squirrel cage motors require $2\frac{1}{2}$ times full load running current.

Slip ring motors require 1% times full load running amperes.

From the above information it is sufficiently evident just how to proceed when calculating the size of a power feeder.

In certain instances where there are a great many individual drive motors fed from a feeder the authorities have allowed the installation of a feeder whose capacity is equal to 75 percent of the total rated horsepower of the motors fed. In this case they reasoned that all of the motors do not operate at full load and all of the machines do not operate together at one time and that under these circumstances 75 percent was ample.

It is my opinion that while it may be good practice and that one may make away with it, that it is poor engineering.

I have seldom seen a customer of mine cut down his motor load. In 99 cases out of a hundred—nine months after the feeder is installed some new machinery is delivered into the place and there you are—feeder overloaded. True enough, you might say, a new job running up another feeder, but in my opinion it is poor practice and I don't approve of it.

We have other types of load for industrial work, spot welding transformers and electric heating appliances such as enamelling ovens, furnaces and so forth.

In the case of spot welding transformers it is perfectly safe to estimate only on the full load rating in amperes as the current consumption is intermittent and the heating effect never approaches that caused by a constant current equal to the rating of the machine. In the case of electric ovens it is absolutely essential to allow fully for the maximum amperage as the load is constant and is maintained at its maximum for long periods.

We have one other feeder proposition to discuss and that refers to lines carrying both light and power particularly in instances where the private plant is shut down and replaced by Edison service.

One cannot determine the size of feeders from the generator equipment installed, nor from the total aggregate of lamp wattage and motor horsepower.

The proper thing to do in this case is to speak confidentially to the chief

engineer and find out what is the maximum load he ever carried in his plant. Ask him—he knows. And what he tells you usually is correct. In the case of direct current be careful not to be deceived or misled, because sometimes he's operating a 110 volt plant. In that case divide the amperage by two and put in 3 conductors, each heavy enough to carry half the total amps.

Where it is a 220 volt plant two wire, install two conductors each large enough to carry the total amperes specified. Where it is a 240 volt three wire plant, endeavor to obtain the total amperage for lighting, apart from power and put in two outsides large enough for the total amperes and a neutral large enough for the total lighting load, you won't go wrong.

Don't depend on the fact that it is a balanced system and that the neutral only carries the unbalanced load, because—sometimes—a fuse blows out.

Boosting Christmas Sales

By O. FRED ROST

Prominent New Jersey Jobber Presents
Some Timely Suggestions

Whenever I have had opportunity to discuss with electragists the subject of increasing sales, most of them have complained that non-electrical merchants take most of the good business away from them. Yet a careful study has disclosed the fact that only about one out of every twenty-five electrical retailers makes the right sort of effort.

Each holiday season finds the consumers more inclined to do the Christmas shopping early. The retailer who gets his Christmas merchandise out on display early is going to profit greatly. It means merely taking a leaf out of the book of merchandising wisdom as we see it written year after year by the most successful department stores. Why not apply their methods to your business?

If you want to cash in on *all* holiday business that is available to you, let the holiday spirit from now on be expressed in suitable window trims and proper displays in your store. Go over your books and send every one of your customers an announcement outlining some of the holiday goods you offer for sale. From everywhere come reports of increased buying, greater confidence on part of the public. Wideawake merchants have prepared for the biggest holiday business in their history. Get

your share of the business that is close at hand.

Electric toy trains is a line which will surely boost your holiday sales if you will but give it a fair chance. We have handled it as long as it has been in existence. The manufacturers could not possibly be more reliable nor fairer in the treatment of their customers. Their price schedule insures you a good profit. Toy trains are rarely handled by drug stores and other non-electrical retail establishments. Every dollar invested in a stock of trains for holiday business is going to earn you an excellent profit.



O. Fred Rost

The bugaboo of fire from candles on Christmas trees is eliminated through the electric tree lighting outfits, and consequently each year thousands of additional Christmas trees are being used. There is a very satisfactory profit in this line.

Many thousands of dollars are going to be spent for radio receiving sets as Christmas gifts. Don't make the mistake of trying to sell cheap sets. The majority of customers who are planning to give radio sets for Christmas will want something that will prove satisfactory and can be added to.

Every electrical socket appliance is a suitable holiday gift. Already congestion in railroad transportation has made it difficult to secure certain items of heating appliances. Consequently the earlier you place your orders the more certain you will be of having an adequate stock to take care of your holiday

needs. Make sure that no customer must walk out because you "haven't got it in stock."

As for that window of yours: Ordinarily the electrical dealer gets as good a location for his store as he thinks he can afford; gets as near to the shopping centre of his town as possible, and after having properly established himself in the location he promptly forgets that for which he is paying the greater part of his rent, namely—the window. Sales experts in every line of business try to bring home to dealers the value of their window by interesting them in window trim contests. Hence so many contests by so many different manufacturers.

Has it occurred to you that aside from the 3' 6" space occupied by your front door you are paying rent for the privilege of having a show window in an advantageous retail location? Aside from your show window your business might as well be located on some side street where the rent is one quarter of what you are paying now. If then you are paying a high rent for the privilege of having a show window in a good location, it follows that the best possible use should be made of your show window. No good merchandiser will allow his show window to remain without attention for more than one week at a time.

Considering that Saturday is a day when retail sales reach their peak, and bearing in mind that a window loses some of its attractiveness as it becomes dusty, we recommend that dealers trim their windows early Friday morning. If someone in your place of business is charged with the responsibility of putting in a fresh window trim every Friday morning, you are going to notice a material increase in your sales for each succeeding week. You would not think of paying some individual, fifteen, thirty or fifty dollars a week without making him work to earn that amount for you. Why should you pay a similar amount for the privilege of having a show window if you do nothing to make that show window earn for you the rent you pay?

Value of Street Lighting

The Society for Electrical Development says that the actual money value to a town or city of well lighted streets has been shown conclusively and repeatedly. Where streets are well lighted business booms; property values increase both for business and residential purposes.

The Joint Committee for Business Development

BY FRANK E. WATTS

An Able Address Before the National Convention Showing the Movement's Great Importance to the Electragist

I want to speak of the work of this Joint Committee for Business Development and show if I can wherein there can be made a tie in as it were between your organization and that movement.

It is very difficult to trace the origin, the inspiration, the source from which this movement sprang, but I think that I have lately come nearer to tracing out the solution of this movement than I have ever been able to do before. And that is a recognition on the part of the various branches of this industry of the interdependence upon each other in the development of the business.

You know that during the war it was impossible for central stations to get equipment enough to take care of the industrial needs. There was no chance for them to expand their business. Immediately following the war money was so high that it was impossible to secure it for investment on a basis which was profitable and would yield a fair return. This condition obtained until the latter part of 1921, when the big utility companies felt that the time had come when they would be able to secure money to advance their business and cause an expansion of that business.

Therefore it was thought by a few of the leaders—and there is a good deal of discussion as to who first voiced it, but we know that it was in the minds of many—that there might be some impetus given to business by united effort. After what we had gone through in this country—which we had never before experienced—it was thought that we could begin to see the light, and that perhaps some stimulus might be given to commercial endeavor by joint organization.

Outgrowth of Organized Need

So a meeting was called, the first being held in New York in January, 1922, and there this movement was started. The Committee was organized and was known as the Joint Committee for Business Development. There were other meetings held, at different times, and the organization began to function. At those meetings all branches of the electrical industry were represented—the jobbers, the manufacturers, the light and power companies, the contractors, the

dealers, the fixture manufacturers, the glassware manufacturers, and so on.

I like to think of this Joint Committee for Business Development as a spontaneous outgrowth of a recognized need on the part of the electrical industry for greater organization. Therefore to effect this organization was called together all the representatives of the organized branches of the industry. And let us distinguish in this that the Joint Committee for Business Development is a Committee of representatives of all the branches of the electrical industry.

There are major committees covering lighting, wiring, appliances, indus-



Frank E. Watts

trial power, and a press committee. These represent the major activities along the lines of the branches of the industry which are to be stimulated. There are a great number of smaller committees to take care of various subjects.

The headquarters of the Joint Committee were established in the offices of the National Electric Light Association.

Then it was thought that some word might be selected around which the activities and the work of this Committee might be centered, and after a discussion of many slogans, and many words, it was finally decided that the word "Electrify" would be the word chosen, because it was felt that it pos-

sessed potential possibilities which might be developed.

I want to quote to you the purposes of this Joint Committee, and what it means, from the address of W. W. Freeman, who spoke at Association Island. He said:

The word Electrify is a command to the industry for greater organization. The work of the Joint Committee is a movement within the electrical industry. It starts from the center and its ramifications will extend to the various branches of the industry.

One of the first things the Joint Committee did was to issue some guide books. There is one on organization; there is another on lighting; one on appliances; one on industrial power, and one on wiring—setting down some of the fundamental principles which might be followed in the development of this business.

This movement was finally launched at the Atlantic City Convention in May of this year.

The activities and the work of the Joint Committee are of necessity slow because what the men who are most interested in this movement, who are closest to it, hope to maintain and hope to create, is a sustained effort and a greater organization in electrical development, which will not run for six months, or fifteen months, but will run for fifty years, or will run indefinitely.

Now if I were to sum up in a few words the work of this Joint Committee, I would say the whole purpose is to secure local organization.

It is very difficult to launch movements that are national in character. The work of local electrical development depends entirely upon to what extent the various organized branches in the various cities get together, and therefore the purpose of the Joint Committee is perhaps rather to inspire men in the various branches of the industry, to get together on a business basis, where they will go hand in hand and keep step with each other in the general development of the business in that locality.

I have said that I like to think of this movement as one where we may picture to ourselves the men in the electrical industry in its various branches walking along the street, advancing to-

ward a certain object, and suddenly someone takes the initiative and says, "Boys, let's all line up and get in step," and they all march up the street in step, with one common purpose, and reach the objective with less effort, the expenditure of less time, and less money and energy.

To Inspire Local Coöperation

The purpose is not to secure subscriptions to be sent to a corps of officers, but rather to inspire local communities to get together and raise the money and spend it locally, in their own town, where every man has a chance for his white alley, and a run for his money. If this can be done the whole purpose of the Joint Committee will have been fulfilled.

The Joint Committee has established in New York a headquarters with a staff which is very small, and will always remain small. That is to act as it were as a master controller, which might in its turn start an activity here, and one there, until it creates a great volume of business in the industry.

We have seen in the recent meeting of the Electrical Leagues at Association Island that which is possible of accomplishment by local joint activities.

There can be no question that if the electrical development in each community is to follow and to advance as it should that there must be greater local organizations. The cities which have had the most active leagues where the various organized branches have worked together, the boys have shown that there has been a greater development along the right line, and a greater use of electricity and electrical service to the public, and the public is demanding that service. That is one of the things that we hope to do—foster the electrical leagues, or some other association, around which activities may be centered.

I spoke recently with Mr. Frank Smith, the President of the National Electric Light Association, and I am going to say to you some of the things that he asked me to say about the central stations.

I believe that most of us are coming to know and to realize and to admit in our own hearts that the very force, the determining factor in aggressive development, lies with the central stations; that any movement that we may organize without their coöperation and assistance, would not carry us very far. I believe we realize that.

We have had our troubles and our differences, and the day is not far gone when the central stations—a great many of them—did not have very much sympathy with other branches of the industry. But today it is a different organization, and they realize it. The central station is the heart of our electrical development, locally, and nationally, and the central station men—the light and power men—today realize that they must play the greatest part in electrical development. The evidence of that is the fact that today your President sits as a member of the executive committee of the National Electric Light Association.

The jobbers are also represented on that committee, as are also the manufacturers. It isn't like it used to be, when they sat in at their own committee meetings and determined their policies, regardless of what other branches of the industry might think of them.

Central Station Cannot Work Alone

So I say today the central stations must be leaders, with the responsibility that leadership brings to them, and they must get together with the other branches of the industry, for they cannot succeed in this work alone.

With this has come a realization and a recognition upon the part of the National Electric Light Association of the importance of the jobber and the contractor and the manufacturer assisting it.

In this Joint Committee work, as well as the executive committee work of the National Electric Light Association, as I said before, the participants are not working for themselves, but all action which is mutual, which has to do with every other branch of the electrical industry, is looked upon from the standpoint not as their own but with a desire to receive the support of the other branches of the industry. That is a condition of which we in all branches of the industry must take advantage.

They are today prepared in these public utilities to take the initiative, the responsibility of leadership locally in an attempt to sell electrical service to a greater extent.

Now let us see for just a moment what the light and power companies, and the development of our public utility companies, is going to mean to us.

It is estimated that those companies will spend annually for five years seven hundred and fifty million dollars each

year in the extension of their service and their lines.

It has been further estimated that for every dollar that has been spent in that way there will be eight dollars' worth of electrical materials, or appliances of some kind sold and when you multiply the seven hundred and fifty millions by eight dollars and then multiply it over a period of five years, it reaches a figure that is almost staggering.

Why look at the new houses that are being built in every city in this country. The Brooklyn Edison Company added seventy-five or eighty thousand new customers to its service lines, this year. All of which means more wiring material and more appliances used.

One of the great things that is being undertaken today by the central stations is the reorganization of their commercial departments which practically went to pieces during the war.

Problem is International in Scope

One of the problems which is before this committee, and which is before all of us, is not the problem of Cincinnati, of New York, of Chicago, but it is the problem of the development of the use of electric service in the small communities. In some way somehow we must find in those small communities, a way to stimulate the development of this business, because there are in those communities opportunities which will perhaps yield a greater revenue per inhabitant than in the larger cities which have been more highly developed.

The purpose of this Joint Committee in this work is to give impetus to any local activity that may be started, to furnish through various other organizations in the electrical industry those helps which will promote the interests of the industry.

This movement of the Joint Committee is a thing which is of necessity slow, as I have said. But I want to point out to you some of the things which have been started and are far reaching and which have had a stimulating influence.

There has been sent out through the jobbers' organization and your own organization a questionnaire for making a survey of conditions existing in every town and hamlet of the United States, finding out how much has been done locally, who the men are who are doing the things locally, what branch of the industry is needing assistance, and what is necessary to bring it up to where it ought to be, and to mold the activities

in the various communities into one common purpose.

Who is the man who must be the leader? Is the light and power company holding back? Won't they get together with the men in that community? If this Joint Committee finds that to be the case, probably through the National Electric Light Association they will be able to reach the man at the head of that light and power company and get him to see the light.

Perhaps it is the contractor-dealers. Then through your own organization you may be able to reach the matter through one of your members in that community, and get those men in line.

Various subcommittees of this Joint Committee have had conferences with the American Institute of Architects and with the American Illuminating Engineering Society, and at the suggestion of Mr. Lloyd that Association has today in course of preparation a course of lectures on illumination.

Motion picture people are taking up this proposition and are preparing films along the lines of better homes, showing the part which electricity will play in the home.

There has been published, through the stimulus of this Joint Committee, a standard hand book on lighting.

Up in Boston they have started a house wiring campaign on the time payment plan. That also applies to New York City.

Mr. Frank Smith, President of the National Electric Light Association, told me that this is due solely to this movement that we have instituted.

Mr. Mitchell of the Electric Bond & Share Company immediately upon this Joint Committee being organized and under way, sent a letter to every-one of their great number of properties, instructing the immediate organization of their Commercial Departments.

The Henry L. Doherty Company has instituted a direct campaign on all their properties.

Outstanding Example of Results

Up in Buffalo only a week ago there was held I believe one of the most remarkable meetings ever held in the history of the electrical industry. Billy Robertson, whom most of you know, is a member of the Joint Committee, and on the twenty-eighth day of June he said at one of their meetings: "We will start something in western New York," and in just three months after that they

called what they termed the Western New York Electrical Conference, which was attended by over six hundred men.

And I will say to you gentlemen that I have never seen a body of men who maintained an interest in the meeting such as was maintained over a period of two days there. The power companies of Buffalo, the contractors, the jobbers, the dealers—all of them—got together and raised a fund and brought the men in from the small communities. Those men went back to their home towns and communities with different ideas in regard to their business, and with a greater desire and a greater purpose to get together locally to develop the business. Over one hundred different towns were represented at that conference.

There is now going on in America this week a Better Homes Campaign, which was instituted by Mrs. Maloney of the Butterick Company. This week there are fifty thousand women actively engaged in promulgating in the United States the idea of better homes.

Five hundred and thirty-three cities are organized and in this movement at present, and one hundred and seventy of those cities were organized under the direct stimulus of the Joint Committee for Business Development.

Ninety percent of the activity of this Better Homes Movement is being centered around electricity in the homes. They have asked the Joint Committee to have another week of this work in March next, when they will organize in a great many more cities.

Mr. Smith and Mr. Aylesworth, president and general manager, respectively of the N. E. L. A. have spent a great deal of time visiting the divisions of that association at their various conventions, and those divisions have pledged themselves to this movement.

Other activities which have their origin—and they will not be hard to trace—in this Joint Committee for Business Development will soon be inaugurated. The Joint Committee stand ever ready to help or to secure help from other organizations for any locality which desires to organize.

This movement is young, but it will be sustained, and the years to come will tell what it may result in. It is not a flash in the pan. Its influence will not be direct, but will be indirect, and we can see the results in later years.

I believe in this movement of the Joint Committee for Business Develop-

ment. The recognition by the light and power companies, and the importance of the other factors in the business I believe today has given the greatest opportunity to the contractor-dealer that has come to him in the history of the industry.

Electragist Plays Important Part

In the development of our industry the contractor is playing an important part. You have your problems to solve, and in the solution of those problems your central station can be one of the greatest factors. You have the problem of merchandising household electrical appliances, one of the greatest problems that faces you.

I have dealt recently with the phase of your business that has to do strictly with electrical contracting, and I know that there is a situation in the electrical industry, so far as contracting is concerned, which requires and needs co-operation and help of every other branch of the electrical industry.

Take the problem of the curbstoner: A curbstoner is not a man who is reliable, or a man who does good work and gives honest service. It makes no difference what capital a man may have, so long as he does good work. If he does good work he is not a curbstoner. A curbstoner is a bird who wires a house with the cheapest kind of material that he can buy; he skimps his work; he may hang a wall bracket and when the people go to turn on the light, they don't get it.

The Jobbers' Association can be the greatest factor in protecting the electrical contractor against such competition as that. The extension of credit to a man who is not responsible, who has not proper conception of his business, who knows nothing about the fundamentals of electrical contracting, who knows nothing about the fundamental elements of that work, who knows not what estimating means, or what cost accounting means—that is the man who is dangerous to that particular branch of the industry, and I say to you that the manufacturers, the jobbers and the central stations can be of great assistance to the organized branches of this industry, and to the contractors in carrying forward the work which is of the most importance to the development of the electrical industry.

And in this phase of your business, the use of electricity in the home, is not

going to depend upon how intensively we try to sell all those things which may be sold in an industry, how intensively we may try to sell those things which may be used in commercial life, how intensively we try to sell all those things that may be used in the home, but it depends on how well the electrical contractor, as a contractor, wires the house, or does the job which he is doing.

We cannot wire our homes as we once did. The time was when we wired our homes for light only. Today we have a greater possible consumption of current, and we are not going to be able to sell appliances and current until homes are wired so that people may conveniently use the appliances which we desire to sell them.

When I say to you that fifty percent of the household electrical appliances which have been sold uptodate are put away in closets, not because the public doesn't like them but because the houses are not wired so that they may conveniently use them, you will realize that that is the biggest problem that stands before the industry today.

The problem of adequate wiring. If we are going to carry this work on, it must be carried on by contractors who understand the importance of installing a job that will last after it is behind the wall, that will give adequate outlets and adequate conveniences.

This opportunity lies before us, and the hooking up of the central station, the manufacturers, and the jobbers is of the greatest importance. But the first factor is the central stations; they are the ones who will benefit most by this adequate wiring and therefore they will be with you and protect you as a contractor who desires to measure up to the standards of your profession.

Unless you are organized, however, neither the manufacturer, the jobber, nor the central station will be able to distinguish who are the responsible men. You must organize locally and bring into your organization those men who have a conception of the profession in which they are engaged. Once you get those men in, separating the sheep from the goats, the light and power company will not be long, and the manufacturer will not be long in recognizing the importance of not extending credit to men who are not responsible.

Over in a town in New Jersey less than sixty days ago there was a contractor who failed for the third time, owing nine thousand dollars, and hav-

ing assets of less than eight hundred dollars with which to pay his liabilities. I want to ask you whose fault it was that that fellow got into that shape? He was a price cutter, who had been destroying the business of the men who were legitimately trying to build up the industry as they had conceived it.

In closing I want to quote from Shakespeare:

There is a tide in the affairs of men
Which taken at the flood, leads on to fortune;
Omitted, all the voyage of their life
Is bound in shallows and in miseries.

The tide, today, lies before this organization—the tide that it has never had before—in this movement of the Joint Committee.

Up in Minnesota there is a little stream that starts and wends its way southward. The further it goes, more and more streams rising in the mountains feed it, until it becomes the great Mississippi, as it flows into the Gulf.

And so this movement, as it is started in the various small communities, will gather force as it approaches that great stream of electrical development, and we shall have a great movement that will carry us forward to the destiny which electricity is to perform in service to mankind.

I believe that we must all stand together. The responsibility of the development of the electrical industry lies with the leaders in that industry. I might exclaim, as did the poet, during a great political crisis:

God give us men!
A time like this demands strong minds,
True faith and ready hands,
Whom the lust of office cannot kill,
And whom the spoils of office cannot buy;
Men who possess opinions and a will,
Men who have honor and will not lie,
Men who can stand before the demagogue,
And scorn his treacherous flatteries without blinking;
Strong men who live above the fog
In public duty and in private thinking.

Electric Home in Movies

The electric home idea has spread like wild fire throughout the length and breadth of this country and Canada, and now we are to have it brought to the attention of the public through the medium of the silver screen.

This movie pictured by the Atlas Educational Film Company of Oak Park, Illinois, will start from the ground up and will go through the various phases of financing, selecting the lot, making arrangements with the architect and contractor, choosing materials and furnish-

ing the home. The electrical side of the picture will receive special prominence.

The film will be a veritable traveling Own Your Home exposition covering the entire country, and already bookings have been requested in practically every large town and city for showings before audiences of the type that will put into practice what they see on the screen.

Modern Organization

"Trumbull Cheer" says of modern organization:

Don't let any of us forget that we can never get away from ourselves. There is no membership in any organization, association, society or church that can do for us what we must do for ourselves. Everytime and at all times, our business is the lengthening shadow of the man behind it, not of the organization it belongs to, but of the men that are part of it.

The cry of the hour is Coöperation and Organization, but there are those who are somewhat prone to let the matter rest there, as far as they are concerned. Belonging to an organization, whether social, business, secret, whether of manufacturers, jobbers, contractors or to a labor union, is worth much only as the men who are in it are in themselves and of themselves worth much and the object of their association and their execution morally and economically efficient. The *Ipse dixit* of an association whose members are not strong as individuals amounts to no more than the powder with which to blow it up.

We can never get away from individual responsibility. Some of these classes are collectively united in various organizations, the value of each of which is the sum total of its individual members. When organization superinduces greater individual efficiency, it is an economic power—not otherwise. The days of the steam roller are passing by. Organization is to uplift individual efficiency and to exchange ideas, not to raise the devil with outsiders.

These are the days when men must look to their individual integrity and combine for mutual uplift and not for organized tyranny. It is the skill of the man himself, not the militancy of his organization that wins and will win for him more and more in these days when men in every calling be it high or low must be worthy of their hire. An organization is only truly such that seeks for the betterment of its members through selfimprovement.



• CONTRACTING •

A Department Devoted to the Study and Discussion of the Practical Problems of Electrical Contracting

ALLAN COGGESHALL

Associate Editors

HENRY F. RICHARDSON



Telautograph and Teletype Systems

For certain kinds of communication it is preferable to use the telautograph or the teletype which transmits a message in writing. The telautograph transmits the long hand writing of the sender and the teletype transmits a type-written message.

The advantages of these systems are secrecy, where a spoken conversation would be overheard, elimination of errors due to misunderstanding over a telephone, and the fact that a written record of the message is left for future reference.

Such a system is of value between the paying teller of a bank and the book-keeping department. When a depositor presents a check for certification or for payment of a large amount, the paying teller can obtain his balance in writing and without embarrassment to the depositor. Such systems are often installed between several branches of a bank in different parts of a city or even between cities. In such cases lines are leased from a telephone or telegraph company.

In a hotel of any size telautographs or teletypes are usually installed on the incoming positions of the telephone switchboard as well as at various departments. When a message is left for a guest or a request made that a person be paged the operator can write the message and name to the bell captain. When a guest notifies the office that he is leaving the clerk can simultaneously write to the valet and other departments who may have charges against the guest and also to the housekeeper who will see that the room is made ready for another guest.

In a hotel such a system is of advantage in ordering meals to be served in guest rooms, etc. The telephone call for such an order is transferred to an order board which is equipped with teletype or telautograph apparatus. This operator is more likely to obtain an order correctly from "Mr. Cohen on the telephone" than another "Mr. Cohen" in the kitchen would be, and the message is written to the kitchen or valet, etc.

The telautograph transmits by a circuit in which the motion of the sending pencil varies the resistance in two circuits which control the horizontal and vertical motion of the pen at the receiving station. The variation in resistance simply varies the voltage at the receiving station and therefore varies the current. Therefore if the voltage in that circuit should vary for any other reason the pen will be affected and the writing will be distorted.

The Writing Affected

For this reason a constant source of supply is essential. The writing will often be seriously affected by starting and stopping of motors on the system. The feeder supplying a telautograph system should therefore be connected so as to be as free as possible from such disturbances. A large power line is also required connecting stations together so that there will be no appreciable fluctuation when stations are thrown on or off.

The wiring for the telautograph is rather complicated and a contractor figuring on such work would do well to obtain a layout from the Telautograph Corporation before submitting his figure. In general all conduit, wire, and boxes must be installed by the electrical contractor, the Telautograph Corporation merely furnishing the flexible cable from each instrument to the outlet box and connecting the instruments. They are very arbitrary in their requirements and will insist that the system be so installed. Their instruments are rented only.

The cost to the owner for paper for these machines is quite high as the writing must be large to be legible. At the present time direct current is required for the operation of the telautograph, although it is understood that in the near future an alternating current machine will be available. Until this is done a motor generator must be provided where alternating current only is available.

The teletype is simply an adaptation of the typewriter telegraph which has been used by the large telegraph com-

panies for years. This device is manufactured by the Morkrum Company. The wiring is simpler than for the telautograph but it would be well to obtain a layout from the company. This machine is not affected by voltage fluctuation. The small motors which operate the teletype instrument can be operated by alternating current but a direct current supply of very small capacity is also required. For this purpose where alternating current only is available a motor generator set capable of delivering about $\frac{1}{2}$ ampere at 110 volts is required. The sending instrument is somewhat similar to a typewriter. The message is typewritten on a tape. When this record is to be used for reference or to be left in a guest's mail box in a hotel for instance a machine with a specially wide tape should be used.

The writing of this machine is perfectly legible while that of the telautograph is sometimes difficult to read. Much less paper is used for the teletype. The machines are sold outright to the owner but the owner may if he desires contract with the manufacturer for the maintenance of the machine.

This machine has one disadvantage in that it is necessary to operate a typewriter mechanism to send a message. However those who operate the instrument will probably require only a short time to master this, and as most messages are short even a person totally unfamiliar with a typewriter can send a message with one finger without much difficulty.

Emergency Lighting

We are discussing the subject of emergency lights to operate when the regular circuits fail under the general heading of Low Voltage System as such systems are frequently supplied from a storage battery.

In most large buildings a storage battery is provided to operate the clocks or bells or other signalling systems. This may be taken advantage of to supply a few low candle power lights about the mechanical plant, for instance,

two or three 10 watt lamps in the boiler room and the same in the engine room.

These can be so connected through a relay and remote control switch that in the event that the regular supply fails these lights will light. This is of great advantage as otherwise it might be very difficult to start the plant in case of accidental shut down at night or in the day time where the engine room is below grade and without windows. If there is a bank in the building a few lights may be installed in the vault or in the space just outside the vault.

Many states require that in the case of theatres, etc., the exit lights and sufficient other light to at least partially illuminate all parts of the house be arranged for two sources of supply. If arrangements can be made with the lighting company to bring two feeders into the building and this meets the legal requirements then this is undoubtedly the simpler method. The second service may be connected through a relay and two remote control switches so that the lights so connected will be disconnected from one source of supply in case of failure and connected to the second source.

Installing Storage Battery

The second source is generally of less capacity than the main supply. Where the second service cannot be obtained or if this does not meet the legal requirements then a storage battery must be installed together with the necessary charging apparatus. This battery may be of the same voltage so as to operate certain fixtures which are normally operated by the main source supply or a low voltage battery may be used and connected to a separate system of low voltage lamps. The last will probably be found the most economical and generally satisfactory.

It will generally be found very expensive to provide for any very large number of lights by storage battery. For instance in a hospital in a town where the current supply is none too reliable and likely to shut down whenever an electrical storm is expected, it may be a serious matter particularly for some of the patients to have the lights suddenly go out and to stay out for an hour or often longer. If the hospital is of any size a storage battery to supply even a low illumination would be very expensive.

If certain lights are wired to separate sections of the panel boards and these

supplied by a separate feeder with a double throw switch then a small steam or gasoline driven generator may be installed to operate these lights at a moderate cost. Steam at a reasonably high pressure will probably be available in a hospital for sterilizing, etc., and this may be utilized to operate a small generator driven by a steam turbine or reciprocating engine. The turbine has the advantage of being simpler to start for an inexperienced person. If steam is not available a small gasoline engine driven set should be found satisfactory.

High and Low Water Alarms

It is often desired and sometimes required by law that a signal system be provided to indicate in the engine room the level of water in a tank or tanks on the upper floors or roof of a building. This may readily be done by a switch with several contacts operated by a float in the tank. Each contact may be connected to light a lamp in the engine room arranged to indicate the level of water. Two of the contacts may be arranged to ring bells if the water is higher or lower than any two desired levels. Such a system requires a wire from the tank to the engine room for each contact on the switch. In a tall building this may be expensive.

Another system as manufactured by the Sundh Electric Company consists of a voltmeter in the engine room graduated to indicate the level of water with a variable resistance operated by the float at the tank and requiring only two wires between the tank and the engine room with an extra wire if a bell is to be operated by high or low water level. This has an advantage over the first described method in that the exact level will be indicated at all times while with the first method it is only known that the water is somewhere between two points.

Possibly the most accurate but also the most expensive method is by the Selsyn system, as manufactured by the General Electric Company. This requires alternating current for its operation and on the theory that if the stator windings of two single phase motors are connected to an alternating current supply and the rotor windings of the two machines are connected together electrically then any rotation of one rotor will cause the other rotor to turn exactly the same amount.

This may be applied to many uses.

For example it is used at the Panama Canal to indicate the level of water in the locks and the position of the gates, etc., at the control station. As applied to indicate the level of water in a tank the rotor of one motor is arranged to be rotated by the float in the tank while the rotor of the second motor is equipped with a dial to indicate the level.

This indicator is very accurate and will stay accurate unless completely inoperative, as there are no contacts to cause any variation. The indicator has considerable torque and may readily be arranged to operate contacts to ring a bell for high or low water. This system required two wires from the tank to the engine room the alternating current supply to the fields being connected locally.

(To be continued.)

As to Specifications

Gerry Sanborn of Indianapolis Had Some That Took the Cake

After somebody had occupied the speaker's platform for some time at the Cincinnati convention telling how the Electricians should and should not have the specifications written for work they are to do, Gerry Sanborn, the Indianapolis Electrician—everybody knows Gerry—got up and refuted the whole argument. He said the ideas propounded were all right, but he had some theories, which while perhaps not so well known as they might be were certainly more ideal. And he proceeded to relate them as follows:

GENERAL: The drawings and specifications are to be taken together. Anything shown on the drawings and not mentioned in the specifications and anything mentioned in the specifications and not shown in the drawings, shall be considered as both shown and specified; and anything wanted by the architect or his friends or anybody else shall be considered as shown, specified, implied and required, and shall be provided by the Contractor without expense to anybody but himself. Any material furnished or work done without expense to the contractor shall be taken down and done over again until the expense is satisfactory to the architect.

PROPOSALS: All proposals shall be accompanied by a certified check made payable to the Architect, in the sum of thirty percent of the amount of the proposal, the check may be retained by the architect in case the contractor's proposal is not accepted.

Proposals shall be for everything shown, described or implied by the drawings and specifications, verbally or mentally by the architect or his assistants, all drawings used for estimating purposes must be returned with the proposal and the architect reserves the right to make such modifications and changes as he may deem proper for the finishing of the work before or after the contract is closed, and no claim

for extra compensation shall be made therefor.

If, however, in the architect's judgment, any changes are made that the architect says cost less or the contractor says cost more, the difference between the two shall be deducted from the amount of the contract price by the architect, whose decision thereon shall be final.

ARCHITECT: The term "Architect" herein appearing shall be understood to mean the architect or any uncivil or insubstantial engineer, draftsman, representative, or anybody else that he foolishly but courteously employs to assist in making rules and thinking of work to be done by the contractor.

CONTRACTOR: The term "Contractor" herein appearing shall mean in every instance, the contractor, his foremen, workmen, or any employee, friend, assignee or member of his family, to whom orders from the architect may be given. The contractor shall in every instance be responsible for the execution of such orders whether delivered in writing, or verbally or by absent treatment, to himself personally, or to any of the aforesaid members of his organization, the same as though told to him.

DRAWINGS: The drawings are to be considered diagrammatic and are to be followed only where space conditions make it possible to avoid so doing. Coincidence between the drawings and executed work shall not be considered a claim for extra compensation. The architect is not required to recognize coincidence. Coincidence between the drawings and specifications shall be immediately referred to the architect, who shall treat it as an accidental and not intentional.

Anything that is right on the drawings is to be considered right; anything that is wrong on the drawings shall be discovered by the contractor and shall be made right without any talk or discussion on the part of the contractor and without referring it to the owner and without showing on the bills.

Anything that is forgotten or omitted from the drawings and specifications, but which is necessary and required for the comfort, convenience and satisfaction of the owner and architect, shall be provided by the contractor to the satisfaction of everybody except himself and in full accord with the intent and meaning of the drawings and specifications and the architect, without extra cost to anybody but the contractor.

Drawings are the property of the architect and must be returned to him whenever required. The contract drawings, however, being diagrammatic, will be fully amplified by the details which will be furnished as soon as the architect can get around to it. If the details, when completed, are found to coincide with the work they shall be returned at once to the architect for correction.

No claim for extra time will be considered that is based on delay in receiving details, in fact they shall not be expected until the work is executed.

RULES AND REGULATIONS: The work throughout shall comply with all rules, regulations, caprices and whims of all city, county, state, national and international departments, bureaus and officials having, or not having jurisdiction.

MATERIAL: All material shall be the best of their several kinds; the contractor is expected to know and provide the best, irrespective of what is specified in detail.

The architect reserves the right to change

his mind about what is best. Any changes necessary to make the work and material fit to the mind of the architect, shall be made by the contractor without extra cost, and without argument.

PERMITS: The contractor shall obtain all permits, pay all fees, annual dues, assessments, subscriptions to mask balls, luncheons, dinners, organizations, outings and hat checks.

GUARANTEE: The contractor shall guarantee, and hereby does guarantee, that he will keep in complete working order anything that the architect asks him to attend to, so long as there is more work in sight in the architect's office.

ARBITRATION: In the case of any dispute as to the nature, character or extent of work shown, specified, implied, or thought of, the matter will be decided by referendum and recall, after which the decision may be set aside and reversed by the architect, whose decision is hereby admitted to be just and impartial, or by his designer-in-chief, his head draftsman, office boy, or any other representative.

PAYMENTS: Payment, if any are made, shall be made on the architect certificate. Architect's certificates shall not be considered negotiable, nor are they legal tender. When once issued, the architect assumes no further responsibility for their further usefulness.

Partial payment, if any, may be made as the work progresses, in the amount of 50 percent of the work done as judged by the architect. In no case shall the architect's judgment cover more than enough to pay the carpenters and helpers every Saturday night. The material men must take the customary chances, and if, in the judgment of the architect, any payment is excessive the contractor shall return the difference to the architect.

Final payment, if any, shall be made when everybody is satisfied except the contractor.

Any evidence of satisfaction on the part of the contractor shall be considered a just cause for withholding payments.

The contractor shall accept and hereby does accept all the conditions hereinbefore appearing, for himself, his ancestors and progenitors, his family, heirs, executors, his friends, assignees and acquaintances.

CODE CHATS

By HURBERT S. WYNKOOP, M. E.

Monthly Discussion of National Electrical Code Practices by Well Known Authority in Charge of Electrical Inspection, City of New York

Outlet Boxes Not Flush

One of our standard violation items is "outlet boxes not flush with finished surface." This is not strictly correct, for the Code does not require a flush adjustment. It is, therefore, well for us to refresh our memories from time to time by reading Nos. 27 b and 28 d.

Armored Cord as a Fixture Stem

We are all familiar with the case where the stem of a gooseneck fixture is allowed to extend through a partition from an outlet box inside a partition to

a weatherproof socket placed out of doors. Recently we had an odd variation of this case, where it became necessary, owing to the unusually small spaces available in the styles of a partition, to accept short lengths of armored flexible cord as the equivalent of fixture stems. The contractor blundered; and this was the only way out.

Solderless Connectors

I have often wondered why the solderless connectors—the "approved splicing devices" of the Code—did not make greater headway in replacing the old style soldered joints in fixture canopies. The latter are often indifferently made up, poorly soldered and taped, and the workman frequently blackens the ceiling and burns off the wire insulation. Now I learn from more than one contractor that where connectors are sent out on a job the fixture hanger tosses them aside and makes up the usual splices—thus making the work more important, more wasteful of time—more expensive—and less convenient of disconnection when it becomes necessary to test for a fault.

There are those who contend that a splicing device is less reliable than a good soldered joint. Perhaps; but they surely are unacquainted with the kind of splices that inspectors everywhere are obliged to approve. A good soldered splice is the exception. If the test of a good plumber is the ability to make a wiped joint, then judging by the splices our inspectors find there are hardly any good electricians.

Receptacles in Canopy Fixtures

How many inspection departments are paying attention to the fifth paragraph of No. 77 b? Does this rule mean that if a canopy fixture is set on a porch ceiling (wooden), the canopy and the outlet box, taken together, must provide a complete metallic enclosure for the exposed terminals? Or does it mean that the canopy fixture itself must have a metal back plate if the receptacle terminals are exposed?

Our experience has led us to employ the latter interpretation in many cases. In the wiring of old apartment houses, it is customary to substitute canopy fixtures for gas in the hallways. The wiring is usually armored cable with so called cable boxes set on the surface of the ceiling.*

A capped gas pipe sticks down below the box. The canopy fixture is fastened

by wood screws extending through the plaster into the lath. Sometimes the fixture cannot be drawn up to the ceiling *because the receptacle strikes the gas cap!* Try this, and see what clearance you get between live parts (including skimmed wire) and the cap.

Overhead Service Conduits

The Code does not say that *rigid* conduit must be used for service standpipes, but it does say that "the conduit system must be weatherproof." Since flexible conduit can hardly be classed as weatherproof, this answers the question sometimes asked by contractors: Why do the lighting companies insist on pipe, and why do inspectors always back them up?

Connecting to Swinging Signs

Some of the signs are such a sway in the breeze. Others are of the hinged variety and swing back against the face of the building. Generally we do not like exposed cables and are therefore compelled to accept flexible conduit, which is not weatherproof.

If lead sheathed cables are drawn into this conduit it is found that within a short time the repeated flexing of the cable has broken the lead sheath. So we have had to accept ordinary rubber covered cables in non-weatherproof flexible conduit. And our experience with this combination has proven satisfactory.

Switches for Single A. C. Motors

The Code permits the weatherproof rating (Table C) to be applied to leads of an alternating current motor. In the case in point, No. 8 was used and fused to 50 amperes; but the switch was rated at 30 amperes. Should a 50 ampere switch be called for?

Well the Table C rating is permitted because the inrush current is not expected to last long enough to heat the conduits to the point of damaging the rubber. How then can this current heat the switch to the point of impairing the latter? I am inclined to believe that, while it would have been better to install a 50 or 60 ampere switch in the first place, we are without sufficient grounds for requiring the smaller switch to be taken out.

Sockets in Woodworking

The ordinary brass shell key socket is generally unacceptable for such

locations, and the so called weather-proof socket does not provide a switching device. We have been experimenting with the push-through socket and find that is reasonably dust tight and gives good service here.

Emergency Light Circuits

One has constantly to combat the tendency to place signs, marquee lights and other lighting on the emergency service of a theatre. Usually this is attempted as a matter of economy, but sometimes the claim is made that since all these lights kept burning during a performance they are really part of the emergency lighting. It should be borne constantly in mind that the last thing to be desired is to have the emergency service fuse blow, and that the greater and more varied load we place upon it the greater becomes its liability to blow.

Wires Used for Grounding at Service

Probably the one rule in the Code which more than any other requires explanation diagrams to accompany the text is No. 15 A. It is possible that some sketches will be offered for insertion in the 1923 Code.

Loops to Elevator Door Locks

If we do not permit open work in an elevator shaft, I see no reason for accepting loops of wire extending from conduits to elevator door interlocking devices. All such devices as we have approved carry provision for the proper connecting of conduit or armored cable to them. And yet it is difficult in some cases to make the door lock people understand why they must carry the conduit or cable into the switch casing and lock it there, as they would do if the casing were an outlet box.

Side Receptacle Sockets

In the case of a socket carrying on its side a standard dead front receptacle, why should we require the receptacle to carry a switching mechanism when we would not do so if the same type of receptacle were placed in a box at the baseboard?

Cranes

We are not so sure that saddle supports for collector wires always provide the best class of construction, especially in ice plants; and we are inclined to favor the old method of supporting by

means of barn hangers, which not only support the wire rigidly but prevent it from reaching the ground in case a span breaks.

Electric Truck Slogan

Selected from over six thousand suggestions in the slogan contest held by the Electric Motor Truck Association, that submitted by J. H. Anderson of New York City has been adjudged the winner of the \$500 prize. The winning slogan consisted of seven words "Use Electric Trucks—Why? Ask all Owners," which brings the rate per word for Mr. Anderson's literary effort to a trifle over \$71.42. Mr. Anderson is connected with the Elbing Weaver Automobile Supply Corporation and his home is at New Rochelle, New York.

Helped Salvation Army

The electrical trade of Boston cooperated generously with the Salvation Army in the home service appeal which was made October 20 to 30 for \$200,000 to be raised in the city to finance the Army's manifold local welfare and relief activities during the coming year.

Four special groups were organized to function in the various branches of the electrical trade and plans were made to reach every person in the trade in Boston directly with the appeal of the Army. George H. Wahn of George H. Wahn and Company accepted the chairmanship of the jobbers' group; William E. Clark of Clark and Mills, the chairmanship of the contractors' group; C. Albert Nelson, of 10 High Street, the chairmanship of the manufacturers' group; and S. B. Condit, Jr., of S. B. Condit, Jr., and Co., the chairmanship of the manufacturers' group.

More than forty-five different lines of trade and industry were organized in individual groups in order to secure the maximum public response to the Army's concentrated city wide effort. Each group functioned under the chairmanship of a man prominent in that particular field, assisted in some cases by a committee of three or more members.

Before the work of active solicitation began on October 20, about one hundred and ten groups were enlisted in the industrial, banking and mercantile division, including as chairmen leaders in every phase of Boston's activities, industrial, social, civic and professional.

ORGANIZATION ACTIVITIES

STATE CHAIRMEN AND SECRETARIES

State	Chairman	Secretary	State	Chairman	Secretary
ONTARIO, CANADA:	Harry G. Hicks, 203 Church St., Toronto	J. A. McKay, 24 Adelaide St., W., Toronto	MARYLAND:	A. C. Brueckmann, Keyser Bldg., Baltimore	C. Phillip Pitt, 7 St. Paul St., Baltimore
BRITISH COLUMBIA:	C. C. Carter, 739 Hastings St., Vancouver	P. F. Letta, 3044 Granville St., Vancouver	MICHIGAN:	Henry Roseberry, 41 Pearl St., Grand Rapids	H. J. Shaw, 613 Lincoln Bldg., Detroit
COLORADO:	J. Fischer, 213 15th St., Denver		MINNESOTA:	John M. Roberts, 1589 Selby Ave., St. Paul	Arthur P. Peterson, 2395 University Av., St. Paul
CONNECTICUT:	Tryon Smith, 247 State St., New London		MISSOURI:	Oscar L. Fickie, Kansas City	A. J. Burns, 533 Delaware St., Kansas City
DISTRICT OF COL.	Frank T. Shull, Conduit Rd. and Elliott St. Washington	H. R. Harper, 635 D St., N. W., Washington	NEW JERSEY:	Geo. E. Davis, 23 Central Ave., Newark	Elmer D. Wilson, 23 Central Ave., Newark
FLORIDA:	T. E. Satchwell, Jacksonville	M. A. Aud, 108 W. Bay St., Jacksonville	NEW YORK:	F. A. Mott, 29 St. Paul St., Rochester	F. M. Farley, 15 West 37th St., New York City
INDIANA:	T. F. Hatfield, 102 S. Meridian St., Indianapolis	A. I. Clifford, 507 Odd Fellows Building, Indianapolis	OHIO:	C. L. Wall, 212 S. Main St., Akron	Walter R. Keeler, 939 E. McMillan St., Cincinnati
IOWA:	Louis L. Corry, 510 Brady St., Davenport		PENNSYLVANIA:	R. W. Keck, Allentown	M. G. Sellers, 1518 Sansom St., Philadelphia
KANSAS:	C. S. Smallwood, 1017 N. 5th St., Kansas City	Arthur Tucker, 619 Jackson St., Topeka	TENNESSEE:	P. W. Curtis, Chattanooga	J. A. Fowler, 10 S. Second St., Memphis
LOUISIANA:	James M. Maloney, 807 Poydras St., New Orleans	W. H. B. Spangenberg, 406 Marine Bank Bldg.	WISCONSIN:	L. G. Ross, 1305 Tower Ave., Superior	H. M. Northrup, 25 Erie St., Milwaukee

LIST OF LOCAL ASSOCIATIONS AND MEETINGS

State and City	Local Secretary	Street Address	Time of Meet.	Place of Meet.	State and City	Local Secretary	Street Address	Time of Meet.	Place of Meet.
ALABAMA					NEWARK	Geo. E. Davis	23 Central Ave.	1st Monday	23 Central Ave.
Birmingham	J. R. Wilcox	313 No. 19 St.	Tues. 10 a. m.	Members' Offices	Paterson	H. M. Demais	83 Ellison St.	Last Friday	P. S. Bldg.
Mobile	Frank Sigler	Sigler Elec. Co.	Wed. 5 p. m.		New York				Pekin Rest'n
ARIZONA					Albany	Chas. Russell	Box 390	3d Thursday	
Phoenix	A. H. Rosenberg		Tues. 4 p. m.	Bldrs. Exc.	Binghamton	A. H. Hyle	44 Court St.	1st Mon.	Cham. Com.
CALIFORNIA					Brooklyn	H. F. Walcott	555 Wash. St.	3d Tues.	507 Elec. Bldg.
Berkeley	J. M. Gregory	Pacific Bldg.	Fri. 8 p. m.	Pacific Bldg.	Buffalo	E. P. McCormick	Oneonta	3d Tues.	Cham. Com.
Covina	F. Rambo	308 E. 4th St.	1st & 3rd Mon.	Spaulding's	Cooperstown	B. B. St. John	21 Main St. S.	3d Mon.	Mfgs. Ass'n.
Long Beach	O. W. Newcomb	118 E. 3d St.	Tues. Ev'g.		Endicott	A. H. Hyle	309 Main St.		
Los Angeles	Irvin C. Brass	Pacific Bldg.	Tues. 8 p. m.	Pacific Bldg.	Glens Falls	W. F. Combs			
Oakland	J. Gregory	165 Jessie St.	12 Noon, Thurs.	States' Cafe	Jamestown	Henry Lund			
San Francisco	A. Elpins		Tues. 6:30 p. m.	Pin Ton Cafe	Kingston	M. C. Rivenberg			
San Nuyas	Los Angeles Assn				Nassau-Suffolk	H. J. Wick	Bay Shore		
COLORADO					New Brighton	E. L. Taylor	Tottenville		
Denver	Alex Hibbard	E. & C. Bldg.	1st and 3rd Fri.	DC & EL Aud't.	N. Y. Sec. No. 1	J. P. Ryan	26 Cortlandt St.	1st Thurs.	Penn's Hotel
Manitou			Friday Nights	Col. Springs	Independent	C. J. Christeson	101 W. 83d St.	2nd & 4th Wed.	226 W. 58th St.
Pueblo	H. Ashcraft		2nd Tues.	Commerce Club	Sec. No. 3	L. F. Luedicke		Monthly	Various Stores
CONNECTICUT					Olean	H. C. Thuerk	Olean L.&P. Co.	3d Thursday	Eggleston Hotel
Hartford	Mr. Cook	Hart & Hegeman	1st Wed.	Hartford	Oneonta	B. B. St. John	29 St. Paul St.	1st & 4th Mon.	ara's & G. F's
New Britain	F. Mulvehill	Conn. Lt. & P. Co.	On Call	192 Grand St.	Rochester	H. F. Janek	S. Glen Falls	2d & 4th Thurs.	Subject to call
Waterbury	D. Neth			Dewey Hotel	Saratoga Springs	Mr. Spengler	P. O. Box 609	1st & 3d Monday	St. George, S. I.
DIST. COL.					Schenectady	H. N. Smith	Tottenville, S. I.	1st & 3d Thurs.	Gas Office
Washington			2d Thurs.		Syracuse	W. Taylor	First St.	1st Tues.	Elks' Club
FLORIDA					Trenton	H. W. Boudry	Gray Elec. Co.	1st Tues.	Utilities Bldg.
Jacksonville	W. L. Joseph	155 E. Forsyth	1st Tuesday	208 Realty Bldg.	Utica	Mr. Hall	White Plains	3d Fridays	
Miami	C. E. Pullen	Pullen-Zoll Co.			Westchester	I. W. Austin	Roth Block	Monthly	
GEORGIA					Woodmere	Geo. La Salle	Westbury		
Atlanta	Cheney Emerson	Ira & Baker Sts.	Thurs. 12:30	Dafodil Res.	Yonkers	Mr. Mayer	Manor House Sq		
ILLINOIS					OHIO				
E. Moline	E. J. Burns	Rock Island	Once a month	Bldrs. Ex.	Akron	C. L. Wall	212 So. Main St.	Monthly	2d Nat. Bk. B'g
Chicago	J. W. Collins	179 W. Wash. St.	2nd & 4th Wed.	Lmbrms Ex.	Bellaire	J. Blumenberg	Bellaire	Call of Sec'y	Bellaire
Decatur	E.O. Weatherford	114 E. Wm. St.	1st Wed.	Y. M. C. A.	Cincinnati	W. R. Keefe	939 E. McMillan	Tues. 3 P. M.	Cham. of Com.
Springfield	C. A. Meadow	407 E. Adms St.	Sat. 2 P.M.	Arade Bldg.	Cleveland	Geo. D. Bury	Elec. League	1st & 3d Thurs.	Hotel Stader
E. St. Louis	C. F. Broderick	317 E. Bro'dwy	1st & 2nd Tues.	Post Hall	Columbus	O. A. Robins	243 N. High St.	Every Thurs.	Girls Athletic Club
La Salle	Ed. Blaine	219 18th St.	1st & 3rd Mon.	219 18th St.	Dayton	O. J. Osmond	41 Fountain Av.	1st & 3d Mon.	Bldrs. Exchange
Rock Island	E. J. Burns	613 Tyler St.			Springfield	J. R. Yost		On call	Various
Streator	Wm. Schroder				Steubenville	D. C. Hartford		1st Wed.	Nat. Ex. Bank
INDIANA					Toledo	F. J. Lucas		On Call	W'ts. & Mfrs. As.
Evansville	I. A. Welburn	404 Main St.	Ev. Fri.	Y. M. C. A.	Youngstown	F. F. McBride	Builders Exch.	Mon. Noon	Y. M. C. A.
Gary	A. B. Harris	570 Washington	1st & 3rd Thurs.	Comm. Club	ONKON				
Indianapolis	G. W. Ball	Peoples Bk Bldg.	1st Tues.	B. & T. Ex. Bldg.	PORTLAND	F. R. Whittlesey	212 Henry Bldg.	2d & 4th Monday	Cham. of Com.
South Bend	Mr. Moran, Jr.	832 N. St. Louis	Wed. Ev'g.		PENNSYLVANIA				
Warsaw	L. F. Meyers	120 E. Market St.			Allentown	A. Hill	Bethlehem	Monthly	
IOWA					Bethlehem	A. H. Hill	510 W. Main St.	Last Thursday	
Davenport	Louis F. Cory		Mon. 6 p. m.	Chamber Com.	Catawqua	W. T. Kleppinger		Monthly	
Sioux City	F. H. Abbot		Mon. 6 p. m.	Jackson Hotel	Dubois	C. E. Blakeslee	Bethlehem	Monthly	Bldrs. Exch.
Waterloo	H. L. Hileman	600 Bluff St.			Easton	C. E. Hill	Bldrs. Exch.	3rd Friday	Und'w't's Office
KANSAS					Erie	Earl Stokes	1518 Sansom St.	2nd Thurs.	1518 Sansom St.
Topeka	H. S. Lee	816 Kansas Ave.	Mon. Noon	Elk's Club	Lancaster	A. Deen	McCance Bldg.	1st Friday	Various
Wichita	L. A. Harris	446 N. Main	Ev. Tues. 7:30	United Elec. Co.	Philadelphia	M. G. Sellers	Bd. of Tr. Bldg.	Tues.	Zenko's
KENTUCKY					Pittsburgh	Joe Jaques	Dubois	Mon.	
Louisville	Walter Diecks	528 W. Jefferson	2-4 Thurs.	B. of T. Bldg.	Scranton	A. J. Fowler		2d & 4th Thurs.	
Paduach	W. R. Kitterjohn		Last Thurs.		St. Marys	C. E. Blakeslee		2d & 4th Tues.	
LOUISIANA					Wilkes-Barre	Ambrose Saricks	E. King St.		
New Orleans	R. S. Starnes	336 Camp St.	1st Weds.	Teocalli Hall.	YORK	A. E. Harris			
Shreveport	Percy Elliott	Elliott El. Co.	Ev'y Monday		SOUTH CAROLINA				
MAINE					Columbia	E. L. Cashion	Sumter, S. C.		
Portland	N. S. Boothing	222 Middle St.	On call		Greenville	E. G. DeBruhl	Ideal Elec.	Wednesday	Manhattan Cab
MARYLAND					TENNESSEE			Noons.	Rwy. Lt. Co.
Baltimore	C. P. Pitt	7 St. Paul St.	3d Tues.	Eng'rs. Club	Chattanooga	Carl Schneider	412 Kirby Av.	Monthly	Allys Cafe
MASSACHUSETTS					Knoxville	H. M. Moore	285 Madison Av.	Ev. other Wed.	Talaris Hotel
Boston	R. M. Gowell		3d Thurs.	Boston City Club	Memphis	H. A. Street	Arade	1st & 3d Wed.	
Fitchburg	H. W. Porter	24 West St.	1st Mon.	Fay Club	Nashville	J. B. Mullen		On call	409 S. Eway
Haverhill	H. J. Walton	Malden El. Co.	2d Mon.	El. Lt. Sta.	UTAH				
West Medford	J. W. Coglin	259 Main St.	Monthly	Various	Salt Lake City	Gus. Forsberg	69 E. 4th So.	Wed. 12:15 p.m.	Newhouse Hotel
Worcester			2d Thurs.	44 Front St.	VERMONT				
MICHIGAN					Lynchburg	W. M. Elliott	Lynchburg	1st Wed.	Local Stores
Battle Creek	H. Shaw	613 Lincoln Bldg	Ev'y oth'r Tues.	Post Tavern	Norfolk	K. D. Briggs	Arade Bldg.	Wednesdays	Old Col. Ch.
Detroit	J. Markle	718 S. Saginaw	Last Thurs.	G. A. R. Hall	Richmond	W. A. Cutlett	Jeff. & Grace Sts		
Flint	Henry Romy	40 Ionia Av.N.W	Tues. Noon	Ass'n of Com.	WASHINGTON				
Grand Rapids	M. Randall	Exch. Place		Cham. Com.	Seattle	J. R. Barry	Pantorges Bldg.	Thursdays	Elks Club
Kalamazoo					Green Bay	John B. Tingley	223 Cherry St.	1st Thurs.	Nicolet Bldg.
MINNESOTA					Milwaukee	Thos. W. Nixon	719 Majestic Bld.	2nd Tuesday	Maryland Head
Duluth	Alfred L. Foster	210 W. 1st St.	1st Tuesday	Builders' Exch.	Racine	F. H. Patrick	1545 W. Blvd.	1st Tues.	Racine Bldg.
Minneapolis	A. P. Peterson	Ave., St. Paul	2d & 4th Tues.	Elk's Club	CANADA				
St. Paul			6:30 P. M.		Guelph	G. E. B. Grinyer	43 Quebec St.		
MISSOURI					Hamilton	K. J. Donoghue	c/o N. Elec. Co.		
Kansas City	R. L. Hutton	212 Admir'l Blvd	Tues. Evs.	University Club	Kitchener	O. S. Lyles	c/o Doerr El. Co.		
St. Louis	Ben Grieb	904 Pine St.	1st Wed.	Am. Hotel	Ottawa	A. C. McDonald	128 Osgood St.	Mon. 8:00 p.m.	Elec. Insp. Office
NEBRASKA					Toronto	J. A. McKay	24 Adelaide St.	2d Tues.	Bd. of Trade
Lincoln	G. G. Kingham	142 S. 12th St.	1st & 3d Mon.	C. of C. Bldg.	Vancouver	P. F. Letta	3044 Granville St.	Ev'y Tuesday	724 Pacific Bldg.
Omaha	J. B. Coningham		1st & 2nd Mon.	Various	Windsor	A. H. Cook	609 May Ave.		
NEW HAMPSHIRE					Niag'ra Penins'r.	W. H. Mackenzie	St. Catharines		
Portsmouth	F. C. Hatch	Kittery	2d & 4th Wed.						
NEW JERSEY									
Atlantic City	F. P. Wright	16 Ohio Ave.	1st Thursday	Malatesta Hotel					
Jersey City	Wm. Doellner	743 Bergen Ave.		P. S. Bldg.					
Long Branch	Chas. Maggs	462 Bath Ave.	1st & 3rd Mon.	Comm. Hotel					

The 1923 Convention

The last annual convention is hardly far enough away to be called a thing of the past and yet a general outline of the next convention to be held at Washington, D. C., has been made and a tentative program has been prepared.

When President Strong and Secretary Johnson of the International Association announced a trip to Washington to make preliminary arrangements for the convention, members of the local organization at the Nation's Capitol got busy and called a meeting. F. T. Shull, chairman of the Washington Association of Electrical Contractors and Dealers, made plans for an electrical night and the meeting was held on Thursday, November 16th, at 8 o'clock p. m. at the City Club.

Frank Watts, editor of the *Electrical Record*, spoke on "Curbing the Curbstoner" and Kenneth A. McIntyre of the Society for Electrical Development spoke on local league activities. The President and Secretary of the International were both called upon to explain the activities of that organization.

The meeting was followed by a buffet supper at which time the guests were given an opportunity of meeting the live wire electrical men of the District of Columbia.

Officers of the International Association arrived in Washington on an early train and proceeded to investigate the question of selecting a hotel for headquarters. It was decided that the best would be none too good and as the Hotel Washington measured up to that requirement it was designated as the official headquarters of the 1923 convention. The Washington is located on Pennsylvania Avenue opposite the Treasury Building, is fireproof, and was erected only a few years ago. It is run under the direction of Robert F. Downs, who is an experienced hotel man of many years' standing. The entire layout is most suitable for a convention of our kind.

At the meeting held in the evening President Strong explained the work that had been done on the tentative program and announced that a definite date had been set for the convention during the week of October 8th, 1923. Chairman Shull of the local organization announced the appointment of Howard P. Foley as general chairman of the local convention and also the appointment of R. W. McChesney to the chairmanship of the local hotel committee.

Big Meeting at Baltimore

Steps Taken Toward the Formation of an Electric League

On the evening of November 10th at the Southern Hotel in Baltimore there was held a dinner meeting which was called with a view to bringing together all of the various electrical interests of that city.

There were about 125 local electrical men in attendance and the guests from out of town were William L. Goodwin, Kenneth A. McIntyre, and W. R. Rosborough of the Society for Electrical Development; President James R. Strong and Secretary Johnson of the Association of Electragists; and Howard P. Foley, Executive Committeeman of Washington, D. C.

J. W. Flannery of the Baltimore Electrical Supply Company was toastmaster and after dinner he first called upon Secretary Johnson to describe some of the activities of the International Association.

President Strong was next introduced and explained the new Constitution and By-Laws of the International Association. He gave a most convincing talk on organization work in general, giving a simple definition of organization as meaning "Getting together and talking things over."

Mr. McIntyre was called upon to report on a survey which he had made in Baltimore during the afternoon. He stated that in a general survey covering various sections of the United States and Canada he found that in the 1,500 homes covered no more than 40 percent of them were properly lighted and only 16 percent of them contained adequate wiring and outlets. He said that during the short time devoted to the survey in Baltimore he found that similar conditions existed in that city. The electrical interests had not sold the idea to the public.

Mr. Goodwin talked on the advisability of organizing an electric league in Baltimore. He cited instances where such organizations had largely increased business in other cities and explained the "More and better business" movement of the Joint Committee for Business Development. He suggested a number of activities that might at once be taken on by a group of electrical men in any city, whether it was called an electric league, board of trade, or any other name. The object would be to create a greater interest in things electrical both for residential and commercial sections.

At the close of Mr. Goodwin's address Chairman Flannery called for remarks and suggestions by local men. In response to this request Mr. Blumenthal offered a resolution calling for the appointment of a committee which would represent both the large and small contractors, central stations, jobbers, and allied interests for the purpose of investigating the need for such a local league and developing plans whereby such a league could be formed.

The motion was seconded by Mr. Samuels, who suggested that manufacturers and their representatives also be included on the committee. A lively discussion was indulged in, Messrs. Greenfield, Dobler, Young, Gowdy, Cruickshank, Dorsey, and Claggett taking part.

Upon further questioning by Mr. Goodwin and President Strong it was the sense of the meeting that the chairman be authorized to appoint such a committee at the earliest possible date so that activities could be started at once, and the resolution was carried unanimously.

Acting as the promotion and publicity department of the Joint Committee for Business Development, the Society for Electrical Development has offered to lead in starting electrical leagues wherever they are needed. The Baltimore meeting was the first one of the kind to be held and it is hoped that the various interests in that city will get together and establish a permanent organization.

Dinner Meeting

In order to revive a spirit of good fellowship in the membership, Local No. 1 of the Metropolitan District, New York City, held a dinner meeting at the Building Trades Headquarters on Monday evening, October 30. This is claimed to be the oldest contractors' organization in existence, having been organized in 1890.

More than sixty members were in attendance, many of whom had to be introduced because they had not met others in the organization for so long a period. But as usual "when good fellows get together" the reserve soon disappeared and all joined in singing the old favorite songs.

Appropriate talks were made by Charles L. Eidlitz, who was the first president of the National Association back in 1901, and James R. Strong, president of the Association of Electragists—International.

N. F. P. A. Committee Meets

The electrical committee of the National Fire Protection Association met in New York on November 13, 14, 15 at headquarters to act on the reports of the standing committees. A. Penn Denton, chairman of the Code Committee of the Association of Electragists was in attendance. He submitted an exhaustive report on wiring, standards and systems, which is an important committee work.

Chairman Dana Pierce presided over these meetings and reports that the proceedings will be issued in bulletin form in due time. The public hearing will be held in New York City on Monday, March 12, 1923.

Salt Lake Meeting

A special meeting of the Rocky Mountain Electrical Coöperative League was held in Salt Lake City on November 9 to hear E. H. Eardley, executive committeeman of the Association of Electragists, report on the work of that organization with special reference to the activities that transpired at the Cincinnati convention in October.

A gratifying number were in attendance from all branches to listen to Mr. Eardley, and the meeting was declared a rousing success. The International executive committee member obviously had a message of great importance to the western industry. He followed out and made good his assertion at the final meeting of the Association at Cincinnati to the effect that he would tell the boys of the west some real things concerning organization and that his talk would overshadow anything in the way of a speech on the subject that had previously been made to them.

Meeting in Bethlehem, Pa.

The regular monthly meeting of the Lehigh Valley Association was held on the evening of October 26 in the University Room of the Hotel Bethlehem, Bethlehem, Pa.

The meeting was well attended, members being present from Lehigh, Catasauqua, Allentown, Bethlehem, Easton and Stroudsburg.

State Chairman R. W. Keck of Allentown, made a very interesting report on the convention of the Association of Electragists—International, and also reported on the convention of the Pennsylvania State Association held in Philadelphia during September and

also the meeting of the Society for Electrical Development held at Association Island, N. Y.

Plans were laid for the annual electrical show in Bethlehem which will be larger and better than the one held last year.

The following committee was appointed to have charge of the electrical show: Messrs. Jacoby and Hill of Bethlehem; Mr. Litzenger of Catasauqua; R. W. Bauchspies of Lehigh; Weaver and Odenheimer of Allentown.

George A. Shoffner, secretary of the Bethlehem Bridge Commission, was present as a guest and gave a very interesting and instructive talk on the Hill-to-Hill bridge. He exhibited blueprints showing various views of the bridge and his talk was greatly enjoyed by all those present.

Out in January

The first installment of the novelized play "The Awakening of Mr. Moss," written serially especially for the NATIONAL ELECTRAGIST, will appear in the January number. Thomas F. Chantler and O. C. Small of the Society for Electrical Development wrote the play and the former is now putting it into story form.

The Joint Committee

Its Objects Definitely Outlined at Meeting November 2

At a meeting of the Joint Committee for Business Development held in New York City on November 2, Chairman Lloyd of the Commonwealth Edison Company, Chicago, read the following statement which sets forth the functions of the committee. Its objects and purposes are to stimulate the use of electricity throughout the land.

The personnel of the Joint Committee must not be construed as being only a committee of the National Electric Light Association, but is drawn from every branch of the electrical business and stands in a unique position as an advisory commercial agency for the whole industry. The majority opinion of the committee should represent the general viewpoint of the industry towards any commercial development proposed or undertaken.

Through its affiliation with allied associations, each of which has representation on the Joint Committee, the committee can receive from such associations suggestions as to what this organization will accomplish in helping in the work in their particular field. The Society for Electrical Development will operate under the general direction of the Joint Committee or the Executive Committee of the Joint Commit-

tee, insofar as work affecting the program of the Joint Committee for Business Development is concerned.

The departments and subcommittees of the Joint Committee are familiar with conditions in their particular fields and should be the place where ideas and plans are developed. Subject to the approval of the Joint Committee such plans, after proper development and approval, are to be put into practical shape by the proper agency either in the form of circulars, literature or statistical data which will be sent to the committees' correspondents—clubs, leagues, and other local electrical organizations—throughout the country.

The component parts of the Joint Committee, either manufacturers, jobbers, dealers, contractors, central stations, or others can suggest to the Joint Committee definite plans or activities.

A study of the literature already produced by various agencies represented within the Joint Committee to be made to determine what immediate steps can be taken to place before a larger audience important commercial information already available.

It must be obvious that electricity cannot be used without the use of some sort of appliance, therefore, anything that can be done to stimulate the sale of electrical merchandise will accomplish the purpose. If more appliances are sold it means more wiring, more supplies and more electricity to be furnished. Stimulating the sale of merchandise stands out as the big work to be accomplished.

The use of the term appliance means not only electric lamps but all sorts of domestic and industrial appliances using electricity.

The comprehensive representation on the committee from all branches of the industry makes it possible to harmonize and consolidate the electrical development movement. There are many agencies in existence for stimulating the electrical business but there has not been heretofore a combination of the representatives of these various movements within one organization. By accomplishing the consolidation of personal representation from all sources on the Joint Committee it is possible to bring together the various minds on any commercial idea or problem that might be presented. Having a majority opinion on such matters would tend toward a concerted movement by each of the agencies making up this committee and should result in more effective and rapid development than has heretofore been possible.

The all day session of the committee was instructive and interesting, and it now looks as though they have struck their stride and great results will be forthcoming at an early date.

Syracuse League Formed

The Syracuse Electrical League was formed on October 18. An enthusiastic meeting marked the forming of the league, when officers were elected and plans formulated for initial activities. Kenneth McIntyre of the Society for Electrical Development was in attendance to assist in the organization of the body. W. Brewster Hall was appointed secretary.

Charleston Association

Safer and better electrical work—that is the slogan of the newly formed Electrical Contractors and Dealers' Association of Charleston, S. C., composed of local electrical firms that have pledged themselves to promote and encourage a higher standard of electrical wiring installation in Charleston through the use of standard, dependable electrical material and expert, high grade labor.

T. A. Brookbanks is president, R. F. Momeir, vice-president, and J. P. Connolly is secretary and treasurer. The executive committee is composed of the following: Louis D. Rubin, chairman; John H. Disher, Michael J. Grace, and John Macmillan. Following electrical concerns are members: Electrical Supply Co., Michael J. Grace, Louis D. Rubin Electrical Co., Southern Electrical Co., R. F. Momeir Electrical Co., Stokes Electrical Co., John Macmillan and the Consolidated Co.

George M. Chapman Dies

Was Many Years Executive Committeeman of National Association

George M. Chapman of Waterbury, Connecticut, for many years a member of the Executive Committee of the National Association of Electrical Contractors and Dealers, passed away at Grace Hospital, New Haven, on November 5. As a member of the executive committee of the National Association he served as chairman of the membership committee. He was also secretary of the Connecticut State Association of Electragists.

Mr. Chapman had been in poor health for several months, which prevented him from attending the annual convention of the National Association at Cincinnati in October. He submitted to a major operation late on October 24 from which he rallied, but unforeseen complications developed causing his death.

Mr. Chapman headed a contractor-dealer business under his own name in Waterbury. He was born in Tolland, Connecticut, October 20, 1861, and spent his early boyhood in Wolcottville, now Torrington, and in Erie, Pennsylvania, and Troy and Albany, New York.

The family removed to Waterbury from Albany in 1877 and Mr. Chapman was graduated from the Waterbury high school in 1880.

Mr. Chapman was registrar of voters in Waterbury which office he had held uninterruptedly for many years.

Mr. Chapman was past grand master of the Odd Fellows of the state, was grand representative of the order and was financial secretary of Townsend



George M. Chapman

lodge of Waterbury for a long term of years. He was also a member of the Toantic tribe, No. 22, Improved Order of Red Men, and of Liberty lodge of Masons, both of this city.

Pittsburgh Electric Show

Thousands Attend Opening of Exhibit at Motor Square Garden

The first electrical exposition in Pittsburgh, and what was said to be the most complete and spectacular electric show ever held in that section of the country, opened in Motor Square Garden on the evening of November 5. It was estimated that more than 5,000 persons attended the opening.

The exposition was sponsored by the Electric League of Pittsburgh, and was open every afternoon and night except Sundays until November 11.

Every major phase of applied electricity was shown, and the exhibits were designed to interest the housewife, the business man, the child, and the public in general.

The exhibits demonstrated the use of innumerable electric appliances for the home, radiophone broadcasting,

electric power, industrial, commercial and spectacular illumination, electrical design and installation, electrical transportation and the transmission of intelligence.

A radio address by A. W. Thompson, president of the Philadelphia Company, on "Electricity as a Public Service," featured the opening of the exposition.

The features of the exposition were a huge electrical fountain, and electrically equipped home, radio broadcasting.

The first thing that attracted attention upon entering the Garden was the spectacular fountain, a triumph of the science of illumination and light reflection and artistic decoration. It was designed especially for the Pittsburgh exposition by W. D'Arcy Ryan, director of the illuminating laboratory of the General Electric Company. It stood in the center of the auditorium, and extended a height of fifty feet into the dome of the building.

The electrical home stood in the south end of the auditorium. It was of the bungalow, stucco type, with five rooms, bath and reception hall, tastefully furnished and equipped with every electrical appliance of necessity or convenience.

The building was constructed within a week, and was complete even to a front lawn encased with an iron fence, concrete walks and doorbell. The doorbell didn't have to be used, however, for the house was divided in the center with a large boardwalk which opened it for public inspection.

The home was the result of the co-operation of many Pittsburgh firms interested in home design, building, furnishing and decoration, together with members of the Electric League.

In the bungalow was every modern labor saving device for the home, the latest design of illumination, electrical cooking and heating appliances, electric cooling and heating systems, burglar alarm, and radiophone set.

The needs of each room in the house were prescribed for individually, and every electric device for the toilet and comfort in the boudoir could be seen, as well as all the conveniences for the breakfast and dining rooms.

Ye New Calendar

Life says:

Thirsty days hath September,
April, June and November,
All the rest are thirsty, too,
Unless you make your own home brew.

Activities Among Electrical Interests in Canada

Showing What is Being Done in Various Sections of the Dominion to Promote the Business of Electragy

Ontario Electragists Convene

Well Represented Provincial Gathering Met in Toronto November 13-14

On November 13th and 14th the annual convention of the Ontario Association of Electrical Contractors and Dealers was held at the King Edward Hotel, Toronto, with about two hundred electrical men in attendance. Delegates were present from many of the cities throughout the province and several came from Montreal and other places.

Monday morning, November 13th, was devoted to an executive committee meeting which adjourned to complete its business on Tuesday evening. Important reports were received from various committees and a special committee was appointed to make a thorough study of the present activities of the hydro electric municipalities in the merchandising and contracting fields, with a view to bringing about better understanding and closer coöperation in various cities of the province.

The Ontario Association is doing splendid work in pushing the licensing bill before the legislature; hearings were heard recently, and the committee reports progress towards the passage of this bill.

Monday afternoon's general session of the convention was devoted to the subject of Selling, and proved to be one of the most interesting features of the convention. Half hour periods were given up to each of five subjects and very able papers were presented as follows: J. F. Heffron, on "Selling Electrical Fixtures;" F. L. Babcock, "Selling Electric Washing;" P. H. Fox, "Selling Electric Cooking;" T. F. Kelly, "Selling Electric Cleaning," and Frank T. Groome, "Selling Good Lighting."

During the delivery of the papers, opportunity was given the audience to write questions on slips of paper which were sent down to the speaker's table and brought out many interesting points arising in the minds of the men who followed these talks with intense interest. A novel feature was the announcement that each of these five speakers had been assigned rooms on the convention floor of the hotel and during the balance of the two days' convention

would be available there to go into greater detail with anyone interested on their particular subjects.

On Tuesday morning the entire session was given over to an address by Sam Hibben of the Westinghouse Company on the "Fundamentals of Illumination." This talk was illustrated with many graphic charts and practical demonstrations of the handling of light.

During the afternoon session Gordon McLaren, president of the Ontario

Stop—Look—Listen

The play "The Awakening of Mr. Moss," which was given in such a pleasing manner at the Cincinnati convention, is being written in serial form, the first number to appear in the January issue of the NATIONAL ELECTRAGIST. Don't miss it!

Jewelers' Association, gave a very interesting talk on "Keeping Store," which held many valuable pointers to the merchandisers. C. D. Henderson presented a very able paper on "Business Financing."

The Association of Electragists—International was represented by Special Representative Davis, who spoke on the "Value of Association." Mr. Davis outlined the important results attained by the reorganization plan put through at

the recent Cincinnati convention, and told of the plans under way for greater development during the coming year. "Associations are for the purpose of the interchange of business experience by business men," Mr. Davis stated, "and members only profit to the extent to which they make use of the experience of others opened up to them, through their association. The need for initiative and personal effort will always remain, no matter how great the Association; the reward comes to those who make the greatest use of their opportunities."

"One of the greatest accomplishments of the Association through such exchange of experience is shown in the recent Manual of Estimating, which if any individual concern should attempt to produce for itself would cost many thousands of dollars. This Manual represents the greatest single step forward ever taken by the contractors and should receive closest study by all members," in the opinion of the Association's special representative.

On Monday evening a banquet was held in the main ballroom of the hotel, attended by the delegates, including the ladies. An address of welcome was delivered by P. W. Ellis, chairman of the Toronto Electric Commissioners, and a stirring address of inspiration was given by Rev. W. A. Cameron, B.A., on the subject "Idealism of Business." Following the banquet dancing



About Two Hundred Electrical Men From All Parts of the Province Attended the Toronto Get Together Meeting

was enjoyed until 1 o'clock to the music of a fine orchestra.

Special features of interest in this convention were the arrangements for having all delegates at luncheon together on both days with numerous entertainment features during the lunches; and an informal evening of entertainment at the close of the convention out at Sunnyside.

The convention was under the chairmanship of Harry Hicks, while the credit for the splendid program and successful carrying out of the convention and all its details was the work of C. H. Hopper and his able convention committee.

Progress in Quebec

Provincial Association Report Shows Healthy Condition of All Interests

The coöperative movement in the electrical industry in the Province of Quebec has most decidedly passed the experimental stage, according to the second annual report of the Electrical Coöperative Association of that province.

The report states that the second year of this association's work has amply proven that there is certain work to be done for its own and the public benefit which cannot be accomplished by any other means but the coöperation of all the branches of the industry, and that the achievement of actual results is a matter of consistent and persistent work, supported financially and otherwise by all engaged in the electrical industry.

The two modern electrical home exhibits that have been held within the past year in Montreal gave to over 30,000 visitors, in a most popular and acceptable form, an idea of what electricity has to offer in home life and work.

A standard has been set in this community of what a properly wired house really means and what the number and location of illumination, switch and convenience outlets should be, facts which heretofore were not sufficiently well known either to the public or to residence wiring contractors.

The idea has been dispelled that a house properly wired for electricity is a luxury and too expensive to be applied to the average dwelling.

The women and women's organizations are becoming convinced of the meaning and value of a campaign for properly wired houses, and to give their assistance in this work.

The attention of the public has been

brought through newspaper advertising to the value of the convenience outlet.

Through the efforts, time and money of the Coöperative Association the contractor-dealers have come to realize what they should be and eventually will have to be if proper development of the industry is expected.

Some of the promotional activities which it is hoped will be carried on through the splendid efforts of the Coöperative Association in the future, are:

Modern electrical homes of two weeks duration in Outremont and East End of Outremont and St. Lambert; also in Quebec City and Sherbrooke.

A modern electrical home of three months duration open to the women three times a week from 2 to 5 p. m. where actual demonstration of the use of domestic labor saving appliances would be given by experts. This to be worked in coöperation with various women's organizations.

Electrically equipped car in conjunction with Better Farming Train.

Industrial lighting exhibit for about two weeks.

Organizing of high school students' and school teachers' visits to power plants.

Drive for better store illumination.

Coöperative advertising.

Further distribution of wiring plans and standard symbols.

Joint luncheons with architects and development of closer coöperation with them.

Coöperation with the government in proper enforcement of the Licensing and Inspection Act throughout the province.

Permanent electrical corner once a week in the local press.

Continuation and broadening of activities of the trade relations committee.

Developing the Contractor-Dealers' Association (one of the most important functions of the Association).

Organizing of appliance and fixture sections.

Three or four mass meetings on proper methods of merchandising electrical goods, with lectures on salesmanship by outside speakers.

Drawing of departmental stores handling electrical work and goods into the work of the association.

Issuing of a monthly bulletin.

Better window dressing.

Education of public on the value of electricity through moving picture films.

Winnipeg Booster Campaign

Things are booming for electragists in Winnipeg. The coöperative advertising campaign that started early in October is showing splendid results as many dealers are already reporting sales that could be traced directly to the influence that emanated from the newspaper advertising pages setting forth the electrical idea.

As a stimulant to the interest that was being shown in the coöperative advertising, the Winnipeg Electrical Contractor-Dealers' Association are offering prizes amounting to \$500 in electrical appliances for a slogan that will

best express the objects and aims of the association.

The contest will close at midnight on December 23. Rules of the contest make everybody eligible to enter it whether connected with the industry or not, and the number of slogans that can be submitted is limitless. As an evidence of the wide interest that is being created in the advertising campaign, the Manitoba Electrical Association has voted to join with the Winnipeg interests in defraying the expense of the publicity.

Tomlinson Leaves Industry

J. R. Tomlinson of Portland, Oregon, advises that he has disposed of his interests in the contractor-dealer business as of October 31. This comes as a complete surprise to members of the Executive Committee of the Association of Electragists—International, who had recently selected him to become a member of that committee representing the Pacific division of the Association.

Mr. Tomlinson says it was not an easy decision to make after nineteen years of association with the industry, but that he felt he could be of greater usefulness to his community in the new venture of financing and furnishing counsel to local industries.

Printing Convention Papers

Many are desirous of knowing where to find in print the various addresses and papers that were presented at the Cincinnati convention of the Association of Electragists. This information is as follows:

Address of Welcome—Benefits of Organization, W. C. Culkins, Cincinnati—Minutes of proceedings.

Business: Yesterday, Today and Tomorrow, George M. Verity, Middletown, Ohio—NATIONAL ELECTRAGIST, November.

The Supply Jobber and the Electragist, W. R. Herstein, Memphis, Tennessee—NATIONAL ELECTRAGIST, December.

The Joint Committee for Business Development, Frank E. Watts, New York City—NATIONAL ELECTRAGIST, December.

The New Manual of Estimating, Arthur L. Abbott, St. Paul, Minnesota—NATIONAL ELECTRAGIST, *Electrical Merchandising*, November.

Electrifying America—Getting the Job Done, F. M. Feiker, New York City—NATIONAL ELECTRAGIST, November.

Specific Specifications, E. H. Eardley, Salt Lake City—NATIONAL ELECTRAGIST, November.

The National Electrical Code—Its Past, Present and Future, Dana Pierce, New York City—*Electrical Merchandising*, November.

Selling the Electric Idea to the Ladies, Alice Carroll, New York City—NATIONAL ELECTRAGIST, December.

All other addresses and papers will be printed in future issues of the NATIONAL ELECTRAGIST. The minutes of the entire proceedings including the executive committee meetings were printed and issued to members in good standing of the Association of Electragists—International, during the month of November.

S. E. D. Christmas Helps

Business is undoubtedly picking up and the electrical merchant will be afforded a splendid opportunity of cashing in on any efforts he may put forward to make this Christmas an electrical one. Following its practice of preparing a series of Christmas Campaign Selling Helps, The Society for Electrical Development has come forward this year with an array of material which perhaps surpasses anything it has offered in previous years. Here is the list of helps:

A 3 panel collapsible frame work window display screen in 5 colors making a suitable background for any window display.

A festoon of 9 cutout cards, holly wreath design, lithographed in 4 colors, each card illustrated with a different appliance. Suitable for window and store interior decoration.

A set of 7 display cards similar in design to the festoon cards, but each illustrated with a different appliance reinforced by a selling message, a space being left blank for price. Suitable for use as window and counter display and price cards.

An attractive page (folding $6\frac{1}{4} \times 3\frac{1}{2}$) illustrated gift suggestion folder in 3 colors on ivory stock with space for imprint. Suitable for enclosing with letters, statements, packages, and for distribution to customers visiting the store.

A set of 6 lantern slides covering Christmas subjects and a highly colored poster stamp breathing the Christmas spirit, complete this splendid assortment of Christmas campaign material.

The Association of Electragists—In-

ternational is cooperating with The Society for Electrical Development in promoting the widest possible use of these Christmas Helps. The folder setting forth the material was sent to members from headquarters during the latter part of October and Electragists are urged to take full advantage of using these Helps to increase sales.

Be Sure to Read It

When you get your January issue of the NATIONAL ELECTRAGIST don't fail to digest thoroughly the article entitled "The Awakening of Mr. Moss." This is the first installment of the farce that was played at the Cincinnati convention by the Union Gas & Electric Company employes, and will be run in serial form in the NATIONAL ELECTRAGIST beginning in January.

New Estimator Secretary

After a long term of office in that position A. Greenblatt has at last resigned the secretaryship of the Electrical Estimators' Association of Greater New York. The resignation, it was well known, had been forthcoming for sometime, but it seemed that the members of the association just couldn't see it any other way than to have the able secretary continue in that capacity.

But the time came when Mr. Greenblatt said he had found a most worthy and efficient successor, and when the man in question was brought to the front the issue was decided to meet with Mr. Greenblatt's request.

H. M. Van Cleaf is the new secretary. His prominent connection with the Toll-

ner Electric Company, Inc., of Brooklyn, well qualifies him to handle the work, and it is with many good wishes on the part of all the branches that he assumes his new office.

Inspectors to Discuss Code

The eighteenth annual meeting of the Western Association of Electrical Inspectors, which will be held at the Hotel Sherman, Chicago, January 23, 24 and 25, will be one of the most important from a technical and practical standpoint that the association has ever held.

Practically the entire program will be devoted to a presentation and discussion of proposed changes in the National Electrical Code.

It is planned to have the chairman of each standing committee or the chairman of each technical subcommittee of the Electrical Committee of the National Fire Prevention Association present the changes in the Code related to the work of each committee and explain the reasons for and import of each suggestion.

Shreveport Show

Shreveport, Louisiana, held a profitable electrical show from November 20 to 25. The exposition activities were carried on under the covering of two large canvass tents situated in the heart of the city.

The show was fostered by the local central station, The Southwestern Gas & Electric Company, and J. E. Cowles acted in the capacity of superintendent. In writing an account of the show, Percy R. Elliott, secretary of the local Contractor-Dealers' Association, praised this work on the part of the power company, saying: "I know of no other central station which will go as far to help the contractor-dealers as will our local company."

One of the most attractive features of the show was the issuing of cash coupons to all purchasers of electrical devices. These coupons were redeemable as cash in payment for any future electric light bill. In other words, if a customer purchased a six pound iron which uses 575 watts there was issued by the seller of that iron coupons to the cash value of \$5.75. This practically secured for the customer an electric iron free. Coupons were issued on the basis of one cent per watt, of course taking into consideration the wattage consumption of the device sold.



The S. E. D. Christmas Helps Are For Use by All Electragists

Mr. Elliott reports that this had been tried out in Shreveport before in 1912 and 1913, and an enormous amount of devices were sold at that time. He believes that if such shows were operated in other cities taking advantage of this feature the central stations would materially increase their load and revenue, thus also helping the other branches.

Anniversary Celebration

Friends and members of the Enterprise Electric Company of Cleveland celebrated the company's thirtieth anniversary on October 24-28. A. L. Oppenheimer who heads the organization was justly proud of the fact that he can boast of having been in such a successful business for so long a time.

The big feature of the celebration was the formal opening of the Enterprise Electric Company's new quarters in the Vickers Building, Cleveland. Many people attended and were unanimous in their praise of the record achievement.

Southern Activities

Things are beginning to boom down south from all appearances. J. R. Wilcox, who heads his own company at Birmingham, Alabama, says that city is building a \$200,000 market house and has let contract for a \$400,000 auditorium seating 8,500 persons. The \$1,000,000 Masonic Temple and the \$1,000,000 Phillips high school are among large structural operations nearing a finish. A \$1,000,000 apartment hotel is announced.

As an enterprising electrager no doubt Mr. Wilcox expects to do some tall hustling in order to land these wiring jobs. All power to him and may he find a lot more just such jobs in the days to come.

Annual Reference Book

The eighteenth annual reference book of the Independent-Associated Electrical Contractor-Dealers of Greater New York was recently issued. It contains approximately one hundred pages of text and advertising matter, and has been edited by Louis Freund.

In the foreword is treated organization work as it concerns contractor-dealers, the opening paragraph stating: "If the contractor-dealer will interest himself in the various organizations which are formed for his benefit, if he will listen to the sound reasoning which is expounded by men who are worth

while, if he will help others who are less fortunate, our industry will reach that stage of efficiency which can only be attained through hard work and earnest effort."

The officers of the association are as follows: President, A. Lincoln Bush; vice presidents, Harry A. Hanft and Louis Freund treasurer, Alfred Whiteley; secretary, C. J. Christesen; sergeant at arms, S. J. O'Brien; and representatives at large: L. L. Strauss, A. Lincoln Bush, and A. Newburger.

Denver League Plans

Activities Are Revised to Define Objects and Extend Service

On the recommendation and advice of Messrs. McIntyre and Davis, the program of the Denver Electrical Co-operative League has been revamped. The special committee formed to outline the new plan of organization submitted its report at the advisory board meeting recently and after a thorough discussion of each phase it was unanimously adopted that a clearer conception of the league and its field of service was needed. The reorganized plan as explained and adopted is as follows:

As the result of further study of the successful operation of other and older electrical leagues, the advisory board has somewhat revised the plans of the league for the coming year, with the hope of more clearly defining its purposes and activities, all to the end that its work may produce with the greatest possible effectiveness for the entire industry.

Briefly stated, the fundamental purpose of the league as a service organization is to bring to the public better illumination and a more complete utilization of the benefits accruing from the use of electrical servants and conveniences in home and business life.

In the accomplishment of this fundamental purpose the league's educational campaign is carried on, and it is the intention to increasingly concentrate league effort on bringing the electrical idea directly to the public. Primarily these activities will be along the following lines:

1. The enlargement of the league staff by the addition of a field man to work directly with architects, builders, owners and others in advising on complete electrical installations in all types of buildings.
2. To work toward the continual improvement and enforcement of electric wiring rules.
3. The establishment of a permanent lighting exhibit with accompanying lectures.
4. The encouragement and coordination of electrical exhibitions at various expositions.
5. The establishment of more electrical homes in the most advantageous places.
6. Serving the public as a bureau of electrical information.
7. The development of team work throughout the industry by get together meetings and other social activities.

8. The extension of membership in the league to other interests participating in the benefits of its work.

9. The education of the purchaser of electrical service and merchandise to the value of the league emblem to them, viz.: to indicate that anyone entitled to its use is reliable and responsible, and that it represents the highest class of service, workmanship and materials.

10. The extension of the work of the league to such other territory outside of Denver as can be served profitably to the industry.

Christmas Sales Contest

Beginning October 23, The P. A. Geier Company of Cleveland announces a Now to Christmas Campaign to sell more Royal cleaners which will last until December 23. \$5,360 is to be distributed in thirty-three cash prizes, and a Royal cleaner goes free to everyone who qualifies by selling a minimum of twenty-five Royal cleaners in the fifty-four working days of the contest.

The contest, it is announced, is for individuals. Contestants were free to do whatever preparatory work they wished before the opening date, but sales actually completed before that time could not be counted.

Contestants must report each week, whether or not any sales are made, and reports must be made on regular forms supplied by the manufacturer which must be certified by the dealer by whom the contestant is employed.

The purpose of the rules and conditions is to insure an absolutely fair contest among individual salesmen, so that the man working in a small community or one working for a small organization will have exactly the same opportunity for winning as those employed by the bigger concerns.

S. E. D. Council Meets

A meeting of the publicity advisory council of The Society for Electrical Development was held in October, at which W. L. Goodwin outlined the purposes of the council.

Mr. Goodwin pointed out that it was the wish of the directors that the council should bring to the work of the Society the benefit of the best advertising and publicity brains of the industry. "The job of the Society, as I see it," said Mr. Goodwin "is to interpret the needs of the industry and carry on the work of supplying those needs as a 365-day operation, year in and year out. One of the most important parts of our operations is carrying this message of electricity to the public. I hope this council will become a mate-

rial aid in pointing out the path which the Society's staff is to follow."

The council discussed a number of phases of the Society's publicity work, making suggestions which will result in a broadening of the already effective work being carried on by the staff. Regular meetings of the publicity advisory council will be held.

Supply Jobbers Meet

The Electrical Supply Jobbers' Association held its semiannual convention at the Hotel Cleveland, Cleveland, O., on November 20 to 24. Committee meetings were held the first two days, while the general meetings took place on the last two. The details of the convention were received too late for publication in this issue, but space permits to say that it was unusually successful in every way, as all matters to receive action were quickly and satisfactorily disposed of.

Home Study Courses

Electragists Association Endorses N. E. L. A. Educational Plan

The Association of Electragists—International has endorsed the new Home Study Courses issued by the National Electric Light Association. A copy of the prospectus was mailed from headquarters the latter part of October to all members, and it is urged that the courses be generously subscribed to by all electragists.

Three new courses are included for home study and are offered for the first time by the committee on education of the commercial section of the N. E. L. A. They are especially prepared for all who are interested in the commercial branches of the electrical industries. Employees of electric utility companies, manufacturers, electrical supply jobbers, as well as electragists are expected to take advantage of this plan of education.

The new Home Study Courses have been prepared for the definite purpose of coöperating in the work of Electrifying America through More and Better Business campaigns. They offer opportunities for all those who are interested as well as those taking an active part in commercial work to obtain the latest and best information bearing directly on the business.

The Courses are thoroughly practical. They cover all phases of the best modern practices and are sold at prices that

permit universal adoption by all branches. The studies are taken up under three general headings: Lighting Sales Course—twelve lessons; Merchandise Sales Course—ten lessons; and Power Sales Course—ten lessons.

Each course is divided into two parts. Part one is the same for all courses, and consists of five lessons on the fundamental principles of commercial engineering as required in the central station business. Part two of each course specializes on one particular branch of commercial work.

These courses are home study courses, lessons being sent monthly or semi-monthly as desired, and are prepared especially for individual study. When

A Liberal Education

If you want to know how to transform an old dyed in the wool contractor into an Up and At 'Em Electragist, read each installment of "The Awakening of Mr. Moss" which will appear in the NATIONAL ELECTRAGIST beginning with the January number. This is a novelized drama, and for the benefit of those who did not have the good fortune to be in attendance at the Cincinnati convention where this drama was played, it is a mighty fine specimen of the new idea.

desired assistance will be freely given to individual subscribers.

It is recommended that where practical, classes or groups be organized under the direction of a leader to discuss each lesson as received.

Each lesson contains practical test questions having a direct bearing on the subject at hand. Sufficient stationery is furnished for use in answering these questions. The answers are carefully graded and returned with helpful suggestions to the subscriber.

The tuition fee for each of the above courses is twelve dollars cash upon enrollment, or company requisition.

Anyone who has subscribed for a complete course may subscribe to part two of either of the other two courses for a tuition fee of six dollars.

A certificate bearing the signatures of the proper officers of the National Electric Light Association is presented to each subscriber who satisfactorily completes any of the above courses.

It should be understood that as indicated by the prices, these courses are

prepared and conducted by the N. E. L. A. at a minimum cost, the material being largely contributed by its members.

Condemns Word Electrifier

Commenting on the article "High Principles of the Electragist" in the October number, setting forth the business practices of R. W. Keck of Allentown, Pa., Chas. E. Tull, president of the company bearing his name, calls attention to the fact that he was the first to use the term Electrifier. He says a peculiar incident has caused him to stop using the word and points out the facts of the situation as follows for the benefit of others, noting the value of using the name Electragist:

There was a party for whom I had taken a contract for wiring the house. After having the house wired they discovered there would be a charge by the public service company for connecting the same. The customer refused to pay my bill and it was necessary to sue. One of the arguments which the defendant's lawyer used was that the term "Electrifier" meant one who completed an electrical installation in every respect. In view of the fact that I had a definite contract as to just what work I was to do the argument was not sustained by the court. My attorney later advised me that to avoid any future likelihood of mistranslation of the term that I discontinue the use of the word.

I thought it would be of interest to a great many who have adopted the word so that it would prevent them from getting into any unnecessary arguments. Of course with the advent of the word Electragist this cause will be eliminated.

On to Washington

This is 1923 Slogan—Time of Next Executive Committee Meeting Decided

No sooner had the Nation's Capital been decided upon as the place where the 1923 annual convention of the International Association would be held than somebody up and shouted, "Let's make the convention slogan 'On to Washington.'" It was said that this somebody was none other than Colonel Stearnes of New Orleans. But we won't quibble about that.

The fact is that—honest to goodness, now all joking aside—Washington, D. C., has really been selected as the place of the next greatest of all electragist's conventions. Will you be there? You bet you will. To convince yourself that you can't afford to miss it, just read what is said of the city by one who knows:

No city of our country is more in the eyes of the people than Washington, the National Capital.

Every important act of Congress, every important act of the executive and administrative departments of our government, concentrates the attention of the people

on Washington. And as the standing of the United States among the nations of the world becomes more and more prominent, Washington will loom larger and larger in the estimation of the world.

To the American citizen, Washington must be full of interest. This interest naturally centers in the White House and the Capitol.

The White House, the official home of the President, was the first public building erected in Washington. The corner stone was laid by President Washington on October 13, 1792. It is constructed of Virginia freestone, painted white. The historic East Rooms is usually open to the public. The Executive Offices, while connected with the White House, are situated in the grounds between the White House and the State, War and Navy Building.

The Capitol, with its massive and beautiful dome, situated on Capitol Hill in the center of Washington, dominates every view of the city. It is surrounded by superbly-kept grounds, flanked by the Senate and House office buildings and the beautiful Library of Congress.

The corner stone of the Capitol was also laid by President Washington on September 18, 1793.

Apart from the interest which attaches to the chambers of the Senate and House of Representatives, there are many points of interest in the Capitol. Among these are the Supreme Court Room, the President's Room, the National Statuary Hall, the Rotunda, the Brumidi Fresco, and numerous paintings from the brushes of the world's most famous masters.

Other points of interest in the city are the Monument, National Museum, Smithsonian Institution, Pan American Union, Lincoln Memorial, Continental Memorial Hall, Corcoran Gallery of Art, Bureau of Engraving and Printing, etc.

One of the most attractive features of Washington is its system of parks and squares. The Mall, which stretches from the Capitol to the Potomac, and embraces the Botanical Gardens, is the most prominent of the larger parks.

The Pennsylvania Railroad alone operates through service to Washington from Boston, New York, Philadelphia, Buffalo, Pittsburgh, Cleveland, Detroit, Toledo, Columbus, Cincinnati, Indianapolis, St. Louis, Chicago, etc.

The semiannual meeting of the International Executive Committee of the Association of Electragists will be held at the Headquarters office on March 14 and 15. While this is purely an official meeting any members of the Association are privileged and invited to attend.

Denver Elections

Members of the Denver Electrical Co-operative League have launched their second year's program with the recent annual election of an advisory board and officers, and the selection of a field representative for the organization.

John J. Cooper head of the Mountain Electric Company of Denver and a number of public utility companies over Colorado, and a member of the Rocky Mountain Utility Committee, was elected by unanimous choice to succeed E. C. Headrick of the Headrick Elec-

tric Company, as chairman of the board.

Frank J. McEniry of Denver, until recently a staff member of *The Rocky Mountain News*, was selected from a



John J. Cooper

list of forty applicants to become the field representative for the league. He entered upon his new duties November 1st and now is engaged in making a detailed study of conditions in Denver. He will establish and maintain a close



Frank J. McEniry

personal contact between the public and the electrical industry and will direct special attention to the architects, contractors, home owners and builders, real estate dealers, and others, in the interests of the industry.

Government Specifications

An important step toward the elimination of the differences between specifications for government purchases and the usual practice of commercial suppliers has been taken through the appointment by the American Engineering Standards Committee, of a stand-

ing committee on coöperation with the Federal Specifications Board. Such differences in practice between government and commercial orders are often responsible for a saying, common in commercial circles, that it costs ten percent more to do business with the government than with other customers.

Work carried out under the general direction of this committee will give industry a better opportunity to participate in the development of specifications for government purchases, and it will at the same time bring to the government to a greater degree than has heretofore been possible, the talent of the two hundred industrial organizations co-operating in the work of the American Engineering Standards Committee.

The members of the committee on coöperation with the Federal Specifications Board are:

A. H. Hall, chairman, assistant treasurer and superintendent of distribution, Central Union Gas Company, New York City; John A. Capp, chief of the testing laboratory, General Electric Company, Schenectady, New York, and Sullivan W. Jones, chairman, structural service committee, American Institute of Architects, 19 West 44th St., New York City.

Secures Big Contract

L. K. Comstock & Company, Inc., of New York, has secured the contract for the electrical work in the construction of the new Chamber of Commerce Building in Washington, D. C. This building will cost it is estimated about two and a half million dollars.

Julius H. Barnes, president of the Chamber says that the idea back of the new building is to establish a national home for commerce and industry in the seat of legislation and administration. While the entire building will be devoted to activities of the Chamber, it will also serve as a headquarters for American business. The large auditorium, it is announced, will be available for meetings of members that are held in the nation's capital.

Mr. Comstock has been chairman of the International Associations' Labor Committee for several years, and at the Cincinnati convention when the new amendments to the constitution were adopted to permit of separate sections for union and non union labor matters respectively, he was made chairman of the union section committee.

Lighting Fixture Meeting

Several thousand lighting fixture dealers have been invited to attend the 1923 convention of the association represented by that branch of the industry. The Hollenden Hotel in Cleveland has been selected as headquarters for the convention. The business sessions will also be held in this hotel. The following are excerpts taken from the convention program:

Address—"Strong Economic Position of the Dealer" by J. C. English, president of the J. C. English Co., Portland, Oregon.

Address—"A Practical Program for Better Business and 1923 Business Forecast" by representative of the Babson Institute.

Address—"How to Become a Successful Retailer" by Stanley A. Dennis, Editor *Electrical Retailing*.

Address—"How Glass is Made" by representative of Illuminating Glassware Guild.

Discussion on the subject, "Copying of Designs" by Albert Wahle, president Albert Wahle Company, Inc., and Robert Biddle, president National Council Lighting Fixture Manufacturers.

Selling Demonstration to a Retail Customer. To be staged by C. J. Netting's Organization of Detroit.

Demonstration of Piracy and Its Treatment. To be staged by W. A. Hadler, president W. A. Hadler Mfg. Co., Buffalo, N. Y.

High Class Buying Demonstration. To be staged by E. R. Gillet, president Gillet-Bissell Co., Toledo, Ohio.

During the October executive board meeting the Lighting Fixture Dealers' Society, which was held in Cleveland, it was decided that the bylaws and constitution of the organization should be revised, so as to permit any lighting fixture dealer to make application for membership direct to the national organization regardless of whether or not he belongs to a local dealers' club in the city or town in which he is located.

This is following out the plan of the Association of Electragists that was adopted at the Cincinnati convention relative to future state and local affiliations with the international body.

In All Estimating Work

The Manual Issued by International Association is Valuable Aid

Have you received your copy of the Manual of Estimating that was recently issued by the Association of Electragists—International? If not write to the Headquarters office without delay. The Manual will be found a most valuable aid in all estimating work.

It is in pamphlet form and is classified in four parts: (1) Taking Off Material and use of Forms; (2) Labor Cost Data; (3) Job Conditions Affecting Branch Circuit Conduit Work; (4)

Tables of Standard Times. This last section contains sixteen tables which include standard times on branch circuit conduit, outlet boxes, cabinets, lighting and motor circuits, switches and plug receptacles, and all such work as comes to the electrical contractor every day.

The second part of the pamphlet is explanatory of the tables, and discusses the methods of arriving at unit costs and labor cost data in general. It takes up the question of the efficiency of electrical workers, shows how to figure their time, and also how to arrive

Don't Miss This

It will be your loss if you overlook the first installment of the novelized drama "The Awakening of Mr. Moss" to appear in the January number of the NATIONAL ELECTRAGIST. Thomas F. Chantler of the Society for Electrical Development is writing this in serial form and all installments will be run exclusively in this magazine.

at the proper figures in applying labor costs to the job. The titles of the other sections are sufficiently descriptive as to require no further analysis at this time.

Of course your dues to the Association must be paid up to date before it is possible for you to get this estimating study. In this connection it might be said that a number of members who had inadvertently overlooked their membership obligations in relation to their dues when recently due, hastened to send in the required amount when by so doing they could have in their possession a work of this kind.

Legal Penalty Not in Code

Clauses relating to legal penalties or to methods of enforcement will not be included in the safety codes approved by the American Engineering Standards Committee. This policy was established at a meeting of the committee in New York in October.

This action was taken on the suggestion of the Safety Code Correlating Committee, which acts in an advisory capacity to the American Engineering Standards Committee in matters concerning safety codes.

It is the feeling both of the men engaged in the furtherance of standardization in industry and of practically all state officials that legal penalties for

failure to conform with established state safety codes and methods of enforcement can best be decided by each state for itself.

Electric Home Book Issued

Under the title of "My Own Electric Home," a booklet suitable for distribution at electric home exhibitions has been produced by The Society for Electrical Development.

This highly attractive, well illustrated booklet appears clothed in an artistic cover, printed in three colors. It is 6" x 9" in size and the copy has been so worded that it will conform to the requirements of an electric home exhibition in any part of the country. Four-



teen pages are standard copy and two pages are available for copy to be supplied by the user, thus permitting the introduction of the the necessary local color.

The Society is to be congratulated on getting out this very excellent companion piece to its monograph, "Organizing and Exhibiting the Electric Home." A sample of "My Own Electric Home" will gladly be forwarded to you with information and prices upon application to Staff Headquarters, 522 Fifth Avenue, New York City.

Stop Taking No Profit

Secretary Peterson of Minnesota Presents Figures to Show Why

Stop taking no profit business—or quit. After all isn't there a lot of horse sense to this sentence?

Not so long ago when business began slowing up a trifle, a few contractors, dealers and fixture men decided to cut the prevailing prices just a little to bring business their way. But unfor-

unately they were not the only ones who could cut prices. The other fellows went them one better. And so the game has gone merrily on until there isn't a cent of profit left for any one. And the fellows who may have gained a momentary advantage at the time of the first cut can't pay their bills.

The point is this—you can't quote a price so low that the other fellow can't go you one better. *Think it over.* The fellows who started the landslide in prices were out of the running before they got a good start.

Make this your slogan: No Profit—No Job. Think it over.

When the year 1922 is over and everything is said and done, will your books read like this?:

Total business.....	\$23,475
Paid for material-labor.....	21,296
Gross profit.....	\$ 2,179
Overhead, 20 percent.....	4,695

Net LOSS.....\$ 2,516*
*(You can't do business for nothing.)
(In other words you paid your customers for the privilege of doing their work.)

or will they read like this:

Total business.....	\$18,798
Paid for material-labor.....	12,223
Gross profit.....	\$ 6,575
Overhead, 25 percent.....	4,695*

Net PROFIT.....\$ 1,880
*(The same.)

In other words it takes more than volume to do the trick. *Think it over.* You're in business to make money. Then why not make it? The price cutter can't live forever.

Honor Greatest Inventors

One of the features of the Universal Exposition of Inventions and Patents to be held in the Grand Central Palace, New York City, February 17-22, will be to celebrate, each day of the exposition, one of the world's greatest inventors or scientists.

In view of the great interest shown by foreign governments in the exposition, the first day will be international day. Then the following week will open with Sunday as Marconi day or Radio day; Monday, Steinmetz day, in honor of Dr. Chas. P. Steinmetz, the electrical wizard of the General Electric Company; Tuesday, Edison day, in honor of Thomas A. Edison, America's great inventor; Wednesday, Bell day, in honor of the late Alexander Graham Bell, who made the modern telephone possible; and Thursday, Westinghouse

day, in honor of the late George Westinghouse, inventor of the air brake and many other inventions that have made railroad travel safe, and founder of the Westinghouse Electric & Manufacturing Company.

Aims in England

Our contemporary association in England, known as the Electrical Contractors' Association, has the following to say to non members with regard to its aims:

Broadly, the E. C. A. organizations seek to defend our trade and to organize it upon such progressive lines that all other electrical interests will recognize our worth and leave us in undisputed possession of the industrial sphere we have made our own.

The workings of the English Association are not unlike those of the Association of Electragists—International, and a greater recognition of similar aims on our part as they make for the industry's betterment in this country will not be amiss.

The accompanying reminder to non members was set forth in the special business development number of the official journal, the *Electrical Contractor*, published in London:

ARE YOU A LEANER?

The two kinds of people on earth I mean
Are the people who lift and the people who lean;
Wherever you go you will find the world's masses
Are always divided in just these two classes;
And oddly enough, you will find, too, I wean,
There is only one liter and twenty who lean.
In which class are you? Are you easing the load
Of the overtaxed lifter who toils down the road?
Or are you a leaner, who lets others bear
Your portion of labor, and worry, and care?

(Never mind the Poetry—It's the Spirit that counts!)

WHY NOT JOIN THE E. C. A.
and
DO A LITTLE LIFTING?

How About Taking a Lesson From This to Influence Non Electragists?

Lectures on Lighting

A series of free public lectures on proper methods of lighting the home were given during the week of November 13th under the auspices of the Illuminating Engineering Society in the auditorium of the Consolidated Gas Company, New York City.

There was a lecture every afternoon except one, and one evening lecture was given. The speakers were Helen A. Smith, who talked about electrical installations, and R. H. Maurer.

Outing Boat Destroyed

Early in November news was received that the Ohio river steamboat "Island Queen" had been completely destroyed by fire. This will come as a shock to electragists who had the pleasure of attending the recent great convention in Cincinnati. For it was this boat that was chartered to take everybody on the afternoon's outing up the majestic Ohio, it will be remembered.

It is learned that not only was the "Island Queen" destroyed but also several other steamers, all of which were docked at the Cincinnati landing together when the fire broke out due apparently to a pot of tar that had boiled over or upturned. The estimated loss in steamboat property is estimated at a quarter of a million dollars.

News Notes Concerning Electrical Contractor-Dealers

Business Changes, Store Improvements, and New Establishments Opened

Danbury & Bethel Gas & Electric Light Company of which C. E. Carter is general manager, will erect new store front and remodel interior of salesroom. Estimate worth of concern, \$500,000. Present headquarters located at Danbury, Connecticut.

McClure-Carpenter Electric Company is opening a new electrical supply store at 89 North Third Street, Columbus, Ohio.

The M. & G. Electric Company will locate at 1105 Lexington Avenue, New York City. A full line of electrical appliances will be carried.

Guarantee Electric Company, Inc., an old established electrical concern, will continue to conduct business at 1428 Atlantic Avenue, Atlantic City, New Jersey. Incorporated capital, \$125,000.

Union Electric Company is reported to have opened an electrical supply store at the Jennings Building, Union, Missouri.

Cooper Electric Company, Inc., has opened a new store at 2028 Fifth Avenue, North; Birmingham, Alabama, where a full line of electrical appliances will be carried.

Edison Electric Illuminating Company is opening a new electrical supply store at 1253 Centre Street, Newton Centre, Massachusetts. General office, 39 Boylston Street, Boston.

Ampere Electric Corporation will locate at Newark, New Jersey. An ex-

tensive line of electrical supplies will be handled. Incorporated capital, \$100,000. Incorporators: Wm. V. Rafferty, 810 Broad Street, Newark, and others.

Albert J. Loecke, successor to James W. Turley, has opened an electrical supply store at East Main Street, Turley Building, Dyersville, Iowa.

Guarantee Sales & Service Company is open for business at Jersey City, New Jersey. Incorporated capital, \$100,000. Incorporators: August G. Menge, 665 Newark Avenue, Jersey City, and others.

Clawson Electric Supply Company of which Fred Price and Arthur Good are proprietors, will locate at Clawson, Michigan.

The Reliance Electric Company has established headquarters at 1313 Moorman Street, Chicago, Illinois, where a complete line of electrical supplies will be carried. Increased capital from \$30,000 to \$150,000.

English Company, an old established electrical appliance business at 148 Fifth Street, Portland, Oregon, is in market for electrical merchandise. Incorporated capital, \$50,000.

Standard Electric & Construction Company has opened a new electrical appliance store at 223 East Long Street, Columbus, Ohio.

Rick-Chapline Electric Company is open for business at the Pierce Building, St. Louis, Missouri. Incorporated capital, \$40,000.

Chattanooga Electric Company in the electrical appliance business at Chattanooga, Tennessee, is adding radio supply department.

Peerless Electric Company of which Dial Pittman is proprietor, has opened an electrical supply and fixture store at Birch Street, Zeigler, Illinois.

Amherst Electric Company will locate at Amherst, Wisconsin, where a full line of electrical appliances will be carried. Incorporated capital, \$35,000.

Carpenter Electric Company, Inc., has established headquarters at 37 Weybosset Street, Providence, Rhode Island. Incorporated capital, \$30,000. Incorporators: Walter J. Carpenter, 17 Crescent Avenue, and others.

S. O. S. Radio Corporation is open for business at Rochester, New York. Incorporated capital, \$25,000. Incorporators: Attorney J. J. McNerney, Union Trust Building, Rochester, and others.

The Newberry Electric Store will locate at 747 American Avenue, Long Beach, California. R. G. Chesterton, manager.

Merrill Electric Company is opening an electrical appliance business at 1214 Prospect Avenue, Cleveland, Ohio. Incorporated capital, \$25,000.

Joseph Fowler Electric Company will move to 118 Monroe Avenue, Memphis, Tennessee, where an extensive line of electrical supplies will be featured. Estimate worth, \$25,000. Formerly located at 153 Madison Avenue.

Jaworsky Electrical Company has established headquarters at 1499 Broadway, Buffalo, New York. Incorporated capital, \$25,000.

Arvedon Brothers, Inc., are opening an electrical supply and fixture business at 82 Portland Street, Boston, Massachusetts. Incorporated capital, \$20,000.

Progress Electric Company, at present located at 5727 Broadway, Cleveland, Ohio, will move to 6103 Broadway, where a full line of electrical appliances will be handled.

W. H. Jackson is reported to have opened a new electrical supply store at South Kentucky Avenue, Lakeland, Florida.

The Franklin Electric Company will locate at Howard County, Franklin, Missouri. Incorporated capital, \$20,000.

Williams Brothers are opening an electrical appliance business at the Gilbert Building, Seaside, Oregon. Estimate worth, \$15,000.

Centennial Lighting Fixture Corporation has established headquarters at Philadelphia, Pennsylvania, where a complete line of electrical and gas fixtures will be carried. Incorporated capital, \$5,000. Incorporators: Joseph Kalter, 1621 Ridge Avenue, Philadelphia, and others.

Acme Electric Company will open a new store at Long Beach, California. Incorporated capital, \$15,000.

Stedman-Manson Electric Company will move to 132 North Greenleaf Avenue, Whittier, California. Present location, 107 North Greenleaf Avenue. Estimate worth, \$20,000.

W. R. Miller & Son, Inc., will establish headquarters at 441 Burnside Street, Portland, Oregon, where a full line of electrical and battery supplies will be handled. Estimate worth, \$10,000. In market for electrical equipment, merchandise, and supplies.

The Wolfe & Mann Manufacturing Company is reported to have opened an electrical supply business at 320 South Hanover Street, Baltimore, Maryland. Incorporated capital, \$10,000. Incorporators: Eugene L. Wolfe, 1210 Eutaw Place, and others.

George Holmer has opened an electrical appliance store at 758 West Washington Avenue, Madison, Wisconsin.

Wright Electric Company will open a new store at 222 South Main Street, Memphis, Tennessee. Estimate worth, \$5,000.

H. J. Powers is opening a new electrical appliance store at 811 Ninth Street, N. W., Washington, D. C. Estimate worth of concern, \$5,000. In Market for all kinds of store fixtures. Requests copies of trade papers and catalogs.

Kondall Electric Company will locate at 511 West Seventh Street, Des Moines, Iowa. A full line of electrical appliances will be carried.

Henry Wischhusen, in the electrical appliance and contracting business at 73 Pleasant Street, Malden, Massachusetts, will move to 11 Dartmouth Street.

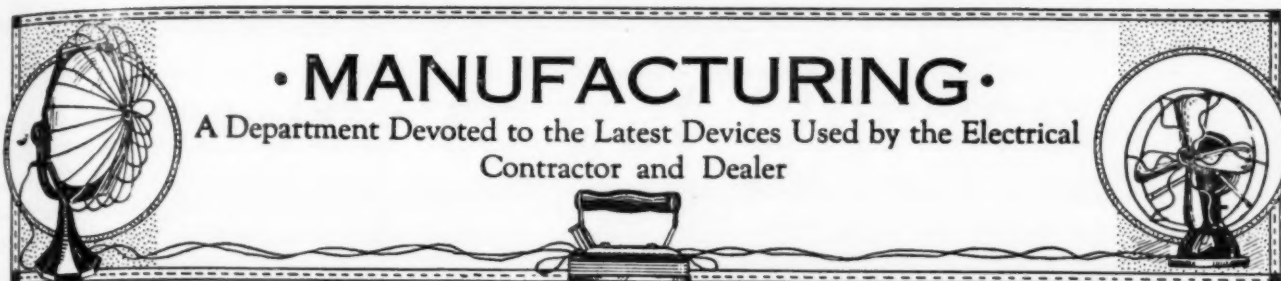
The Electric Shop of which N. R. De Young is proprietor, will establish headquarters at North Kansas Avenue, Marceline, Missouri. In market for radio and electrical supplies. Mr. De Young wishes trade papers on electrical trades, radio, etc.

Ohio Electrical Appliance Company will continue electrical appliance business at the Citizens' Trust & Savings Bank Building, Ohio.

Virkler & Thompson are expanding electrical supply business at Browne Street, Carthage, New York, new headquarters.



The New Westinghouse Building in Minneapolis Which Will Serve the Twin City Area for This Company



New Tumbler Switches

Three new switches have been placed on the market by the General Electric Company—a compound tumbler switch and a porcelain tumbler switch, both with wide mounting ears, and a locking tumbler switch.



The wide mounting ears are designed to simplify installation under all conditions and to prevent the loosening of the switch from the wall which sometimes results when the switch is not rigidly fastened to the outlet box. Outlet boxes are often improperly installed below the plaster line, and washers, blocks and similar makeshifts are employed to build the switch up to the proper alignment with the wall. The wide ears which are a feature of these switches assure absolute alignment, regardless of the location of the box, as they lie directly against the wall surface and are rigidly held there by the mounting screws threaded into the outlet box.

The mechanism of the compound switch is entirely enclosed in a durable, dust proof compound casing—shown in illustration—while that of the other is enclosed in porcelain. Both have an indicating spot on the handle, showing positively when the current is on.

The locking switch, with plate assembled, presents an almost plane surface. When inserted the locking key acts in the same capacity as the handle of the other switches. It is practically impossible to operate the switch without it.

All these switches incorporate the quick make and break and positive start action, insuring freedom from short circuits or the freezing of operating parts.

Cutout Fixture Device

A cutout and lowering device by means of which cleaning and relamping of electric light fixtures can be done in absolute safety is being manufactured by the Westinghouse Electric & Manufacturing Company.

The device which is called a pulley socket, is so arranged that a pull on a rope disconnects the electrical parts and the entire fixture comes down dead from the ceiling. The disconnection can be made without first switching off the circuit, for within the pulley socket wiping contacts are provided of sufficient capacity to make and break the current of a 1000 watt lamp. A second pull resets



the fixture in place. An angle reflector can be used, for the device is so designed that the reflector will always come back into its true position and lock into place.

All the parts of this pulley socket are built in liberal dimensions and are totally enclosed in a cast iron housing which is galvanized and then painted.

The socket is provided with a double lamp grip under which the lamp is held so that it can not loosen from vibration.

Some of the advantages of the use of this pulley socket are that it saves time in cleaning, eliminates the dangerous use of ladders, makes possible a more thorough cleaning of fixtures with less effort, and eliminates the danger of short circuits and accidental contact with live parts.

New Luminaire

Luminaire No. 5000 is a new eye comfort lighting product of the National X-Ray Reflector Company of Chicago,



especially for the home. It is attractive in design, made of brass and is finished in antique silvertone. Either 2-75, 2-100, or 2-150 watt Mazda "C" lamps can be used by a simple adjustment on the two sockets inside the small bowl.

New Thru Light Plug

George Richards & Company of Chicago announces an addition to the Hemco line of plugs. The new item is called the Hemco Trip-Lite plug, and has three outlets, all of which are threaded so that the Uno type of shade holder can screw directly on the threads. The clamp type of shade holders fasten over the threaded ends of the plugs.

Like the Hemco Twin-Lite and Hemco Tach-Lite plugs, the Hemco Trip-Lite is molded in one piece of condensite. It will not crush if accidentally struck or dropped. It is unaffected by moisture and will burn the hottest electrical lamps without softening. It is comparatively small, neat and attractive.

The Pep Vibrator

The Pep vibrator recently developed by the N. E. Norstrom Electric Manufacturing Company, of Chicago, employs a patented method of operation which differs from that generally used, in that vibration is produced by means of an electromagnet operating on a 110-volt alternating current circuit.

The flexible armature produces a smooth, powerful lateral motion with percussion which will not injure the most delicate nerves. The machine is thoroughly insulated, so that all danger from shocks is eliminated, even when the vibrator is used with wet hands. As there are few wearing parts and none to get out of order the machine is guaranteed to last indefinitely.

New Safety Range Switch

A new type of switch, especially designed for use with electric ranges has recently been developed by the Westinghouse Electric & Mfg. Co.

The special features of this switch are simplicity of construction, complete safety to the operator, and attractive appearance. It consists of a rugged knife switch, suitable for either two or three-wire 125/250 volt circuits, mounted in a steel cabinet and operated by an external handle.

The cabinet is finished in baked white enamel, which is easily cleaned with a damp cloth. The cover of the cabinet is held in place by screws, so that no one can accidentally come in contact with live parts.

New Desk Lamp

A new line of desk lamps has been developed by S. Robert Schwartz & Bro., New York City. The distinguishing feature of this line is the oblong green glass reflector. This green glass shade has been designed so as to provide uniform distribution of light.

This new line combines a number of mechanical features: (1) The green glass shade can be adjusted to any angle desired and is supported by a rigid

brass bracket. Since shade is balanced on the pivots of the bracket, little clamping adjustment is required. (2) A key-hole slot at side of shade provides a means for easy removal. (3) The shade is clamped in one place only by a single wing-nut adjustment screw and



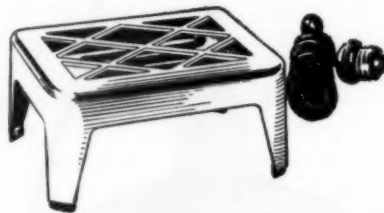
is free to expand when it heats up, thereby reducing the possibilities of breakage. (4) Esrobert green glass lamp has a heavy cast metal base of distinctive ornamental design. The base is 7" square and weighs 7 pounds, which prevents the lamp from tipping easily.

Each lamp is individually packed and is completely wired with Association pull chain socket, 10 feet of new code parallel mercerized cord and 2-piece Association attachment plug.

New Table Stove

The Gem Manufacturing Company of Detroit is making a new aluminum electric table stove, registering it under the trade name of Radio.

The Radio stove is of compact two piece design, the bottom plate encasing



the asbestos, and the resistance wire being held in place by a series of projecting lugs. Twenty gauge sheet aluminum is used throughout, which has been given a handsome velvet finish by a special chemical process.

Condensed Notes of Interest to the Trade

The Century Electric Company of St. Louis announces that E. L. Kenney, formerly connected with its Cleveland

office, has been appointed to the position of district sales manager at Rochester, New York.

A supplement to its catalog No. 333 is announced by the Ivanhoe-Regent Works of General Electric Company, Cleveland. Revised price lists have also been issued by this company to simplify the quoting of prices on certain classes of merchandise.

Frederick B. Larsen has been appointed field representative for southern Atlantic states by the Bryant Electric Company of Bridgeport. Mr. Larsen was formerly a contractor-dealer in business at Clearwater, Florida.

Following appointments have been made by the Johns-Pratt Company of Hartford: George W. Mapother, New York district sales manager, electrical division; L. F. Carleton, district sales manager, electrical division, St. Louis; W. S. Gordon, sales manager, molder products division, home office; and George Saylor, western sales manager, electrical division, Chicago.

C. A. Felker, formerly identified with the electrical supply business in the mid-west, on December 1 became resident representative in Rockford, Illinois, of the G-Q Electric Company of Milwaukee.

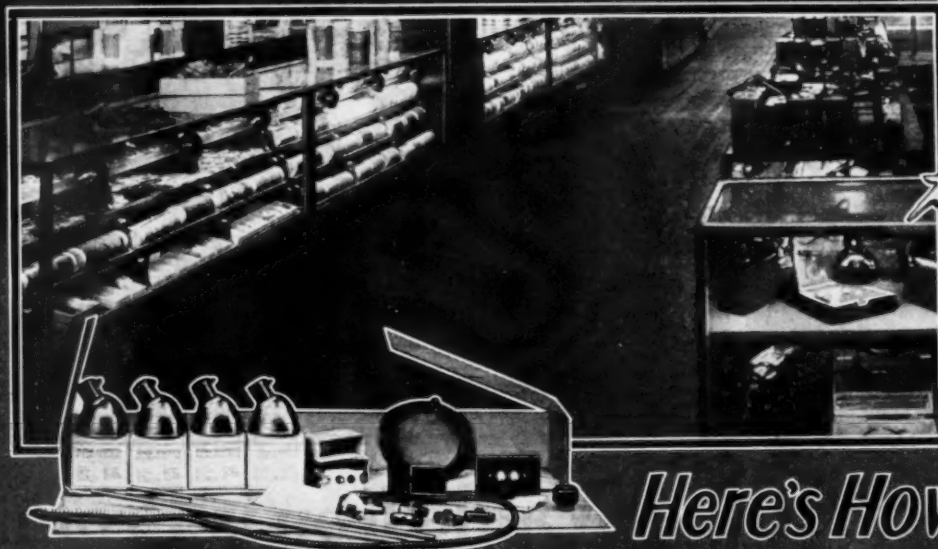
With much sorrow the Detroit Insulated Wire Company announces the death of its superintendent, John S. Lucock, who passed beyond on October 10, after a long period of service with that company.

William A. Moody, formerly connected with the electric range and water heater department of the Pacific Gas & Electric Company, San Jose division, has been employed as factory representative in northern California for the Automatic Electric Heater Company of Warren, Pa.

Data sheets covering a short line of accessory fixtures for use in connection with Red Spot commercial lighting hangers, have just been issued by The F. W. Wakefield Brass Company, of Vermilion, Ohio.

United States Radium Corporation of New York City advises that it has issued a set of catalog sheets covering radium illuminated articles representing some fifteen manufacturers' products. The set, compiled primarily for architects, is conveniently printed and bound for ready reference after filing.

Use Me to get ORDERS



Here's How

I helped land ONE big Order!

I'm a package outfit of Scoopettes, complete with all fittings *and* wire ready for you to light *any* show case

Here's how I helped one dealer:

1. While the prospect was "hot" his jobber delivered a package outfit of Scoopettes from stock. It was complete with all necessary parts. All he had to do was to install it in one case to demonstrate Scoopette show case lighting to the merchant in his own store.
2. Scoopettes lighted this case better than any the merchant had ever seen and the cost of lighting his regular 8-foot case with Scoopettes *was less* than any other equipment he had ever used—only 5 cents per 8-hour day.
3. When we compare the cost of lighting all cases with Scoopettes it was easy to get the big order for his 256 cases. Did we take our time then? No—we started installing more standard package Scoopette outfits right then. Is he satisfied? I'll say he is!!

Any wonder he is sold on Scoopettes in complete package outfits? *No delay* when the prospect is interested. *No delay* installing 'em—and best of all—Scoopettes light any show case better and cheaper because each "Scoopette" is a powerful silver mirrored X-Ray Reflector!!!

Sell yourself on Scoopettes so you can sell others! Read our bulletin "How to Sell Show Case Lighting!!!"

SCOOPETTES

Use Standard 15 or 25-watt

Round G-18½

(medium screw base)
Lamps

Each Package

is a complete Outfit and includes all parts necessary to completely wire one case, i. e., Scoopette units, T-fittings, elbows, tubing, insulating joint, and wire.

**NO OTHER
PARTS NEEDED**

National X-Ray Reflector Co.

New York
31 W. 46th STREET

CHICAGO
229 W. JACKSON BLVD.

Los Angeles
PACIFIC FINANCE BLDG.



See that the Waffle Iron is Prominently Displayed in your Store



The Westinghouse Waffle Iron is a really remarkable appliance. Few people realize its convenience and advantages.

These are so outstanding that approval is won almost instantly wherever it is displayed. Even the people who never cared much for waffles, enthuse over those made the Westinghouse way.

So give the waffle iron all the prominence you can. Make it a feature appliance in your store. We know it will pay you to do this because of the great success other dealers have had.

The average woman thinks that "waffles are just waffles" and has no idea of the great number of delicious dishes which can be prepared with them. Hold demonstrations and show how the Westinghouse Waffle Iron makes short cake, waffles, plain wafers, chocolate brownies, omelettes, and many of the other favorite dishes.

Westinghouse Electric & Manufacturing Company
MANSFIELD WORKS, MANSFIELD, OHIO

Westinghouse



A Christmas Suggestion from Westinghouse

Try this to increase your December lamp sales.

Secure two wreaths: one holly the other evergreen.

Wire each of these wreaths for a single socket. Place a Westinghouse White Mazda lamp in each socket and hang the wreaths in your window, accompanied by cards suggesting that those living in your community have their wreaths wired in the same manner.

Wire up a couple of extra wreaths and present them to the local florist for use in his windows. Get him to suggest to his customers that they allow him to send the wreaths purchased to you to be wired.

You will be agreeably surprised at the number of White Mazda lamps, sockets and the amount of cord you will sell by following this suggestion.

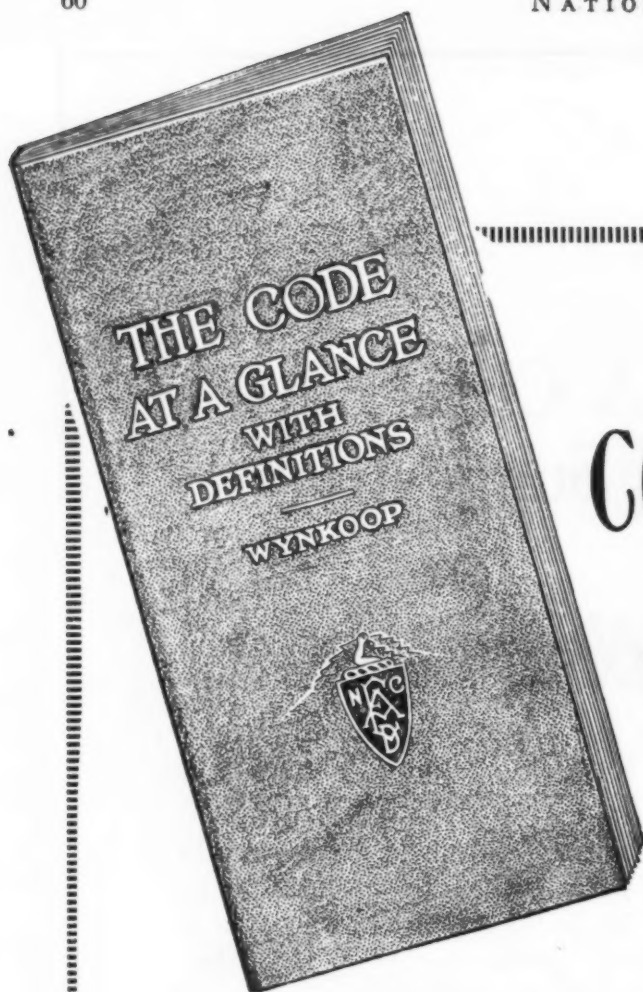


WESTINGHOUSE LAMP COMPANY
165 BROADWAY, NEW YORK, N. Y.

For Canada: CANADIAN WESTINGHOUSE CO., Ltd., Hamilton, Canada
Sales Offices and Warehouses Throughout the Country



Westinghouse



YOU NEED

a copy of the

CODE AT A GLANCE

BECAUSE

**The Quality of Your Wiring
Jobs Depend Upon Exact
Knowledge of the
National Electrical Code**

**This useful book—POCKET SIZE—contains
Code Definitions**

Written in plain English—easily understandable—readily accessible when needed—within reach of every electrical man who uses the National Electrical Code.

The Code at a Glance is only **ONE DOLLAR**
Less than the cost of any mistake made by guessing

GET YOUR COPY NOW

Check or Money Order to the

ASSOCIATION OF ELECTRAGISTS

INTERNATIONAL

Formerly National Association of Electrical Contractors and Dealers

15 WEST 37 STREET, NEW YORK CITY

HUBBELL

Actually "Sells on Sight"

Here is a "last minute" Christmas gift of all-year-round saleability, that *actually sells on sight*. It safely provides *three* universal Te-Slot Current Outlets when connected with any Edison Base Receptacle or Convenience Outlet.

HUBBELL

Triplex Table Tap (6900)

is *new and unique*. With it your customers can wire their own furniture. It may be permanently attached to the underside of a table top, or to a wall surface; or used as a portable device. Its excellent design and beautiful finish make it suitable for any surroundings. It is backed with green baize and will not scratch the finest surface.

Sell Hubbell *Triplex* Table-Taps: each one increases the market for electrical appliances by making it easy and convenient to use them.

Write today for Circulars and Bulletin

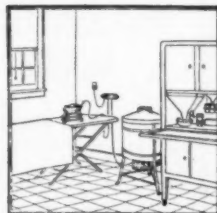
Just off the presses—a new and beautiful circular, which can carry your imprints into the homes of your customers.

How many could you use?

HARVEY HUBBELL INC.
ELECTRICAL SPECIALTIES
BRIDGEPORT CONN. U.S.A.



For portable use in any part of the house.



Attached to kitchen wall will operate 3 appliances.



No. 6900 Complete

HAZARD

CODE WIRE



'Made for Users Who Want the Best'

HAZARD Code Wire gives honest value and represents the square deal between the maker and the user.

Mechanically, electrically and chemically, Hazard Wire is far in excess of the requirements of the N. E. C. specifications, and is, therefore, **safe** wire.

HAZARD Code Wire is clean to handle.

It is easiest to "fish."

It is safe.

It lasts longest.

HAZARD MANUFACTURING CO.,
GENERAL OFFICES AND WORKS
WILKES-BARRE, PA.

NEW YORK
533 CANAL STREET

CHICAGO
552 W. ADAMS STREET

PITTSBURGH
2213 FIRST NATIONAL BANK BUILDING
DENVER

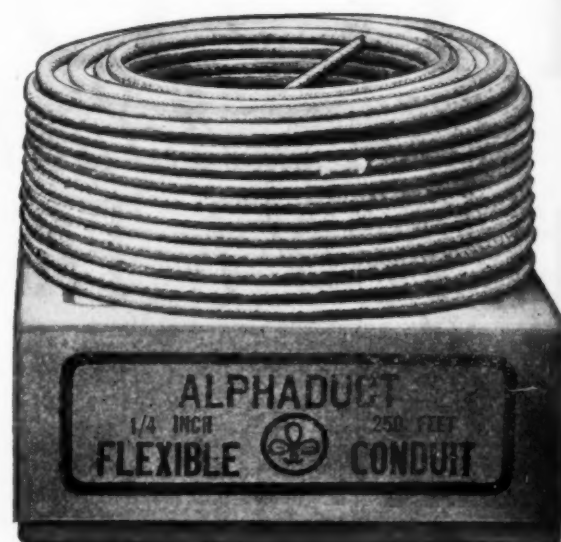
1415 WAZEE STREET

BIRMINGHAM

1701-3 FIRST AVENUE

MAKERS OF QUALITY WIRE ROPE SINCE 1848

"ALPHADUCT"



"ALPHADUCT" is preferred above all other Conduits, Metallic or Non-Metallic, for protecting the Electric Wires connecting Battery, Generator, Lamps, etc. in Automobiles, Motor Trucks, Electric Railway Cars and similar situations, since besides holding the moisture from reaching the wires, it's Exclusive Heavily Glued Cotton Duck Member holds back as well the oils and grease from reaching the insulation on the wires, which when other conduits are used is sooner damaged thereby and short-circuiting occurs.

Non-Metallic Conduit is preferable to Metal Conduits rigid or flexible, for it is more quiet, avoiding the rattle of the metal types, and when a leak of electricity does occur in the insulation on the wires one is saved an electrical shock often when looking for trouble.

MARKING

Yellow thread in or back of lining

ALPHADUCT CO.

Jersey City, N. J.

Packaged Panel Boards Safety Type for Residences

Better—

- to stock
- to sell
- to install
- to use



The New Triumph Residence Safety Type Panel Board is not only an absolute safety spot for the home, but has many advantages to the electrical contractor and dealer. It is of sectional construction and comes as a complete unit. One type fills all requirements for both two and three wire connections and can be obtained with or without main switch.

This new Type "R" makes it possible to locate the panel board at the logical center of distribution, thereby offering a new and real selling point to the contractor who is trying to induce a house owner to install the most modern equipment. The panel board, being the only portion of the wiring installation showing after the completion of the work, ought to be of the highest quality because it is the index of quality throughout.

Full details of this "R" Type Panel Board will be furnished gladly. Write and ask for our "R" Type Bulletin which also includes some worthwhile suggestions on better home wiring.

District Offices

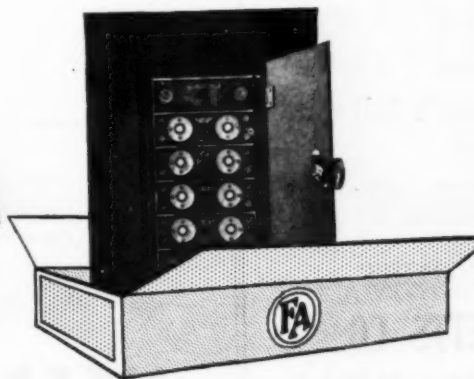
Detroit, New York, Dallas,
Minneapolis, Kansas City,
Cincinnati, Cleveland,
New Orleans, Chicago
San Francisco, Los Angeles,
Seattle.

Frank Adam
ELECTRIC COMPANY
ST. LOUIS

Other "F-A" Products

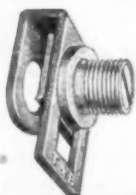
Major System of Theatre
Lighting Control; Triumph
Line of Safety Type, Stand-
ardized Panel Boards and
Cabinets; knife switches;
safety switches; hanger out-
lets; reversible-cover floor
boxes; A. C. and D. C. Dis-
tribution Switchboards.

The
Triumph
Line of
Standardized
Safety Type Panel
Boards



The new Safety Type "R" Panel Board is being nationally advertised to prospective home owners through the use of pages in HOUSE & GARDEN, HOUSE BEAUTIFUL and COUNTRY LIFE. This will unquestionably make it easier to sell than panel boards not so featured, and ought to induce you to give it special consideration.

There is a practical reason
for every "T & B" product



T. & B. OFFSET FIXTURE STUD

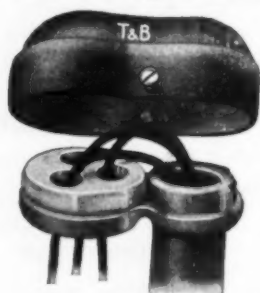
Many a box is found slightly off center when fixture is ready to be hung.

This Stud allows an adjustment up to $\frac{3}{4}$ " in any direction.

If you have ever had to work with an off centered box, you will see the value of this fitting.



T. & B. TOGGLE BOLT is the strongest made.



Cap No. 1430

T. & B. ENTRANCE CAP Approved by National Board

Lots of room for wires

Easy to install

SAVES MONEY

Only two screws

Screws are burred and can't fall out

SAVES TIME

Heavy Cast Iron

Galvanized

THEY WILL NOT RUST

THE THOMAS & BETTS CO.

Factory, Elizabeth, N. J. Boston Office, 10 High St.
New York Office, 63 Vesey St.



The cars of the Chicago Elevated Railways are Unilet equipped.

For Unfailing Service

Wherever electrical wiring must give the utmost in service—where the conditions are the most severe—Unilets have an enviable reputation.

Their light weight due to the pressed steel construction makes handling easier, more rapid, and less costly.

This construction also facilitates wiring because of the increased space with no increase in the dimension of the fitting.

There is an Appleton Unilet for every requirement

APPLETON ELECTRIC COMPANY

Factory and General Offices

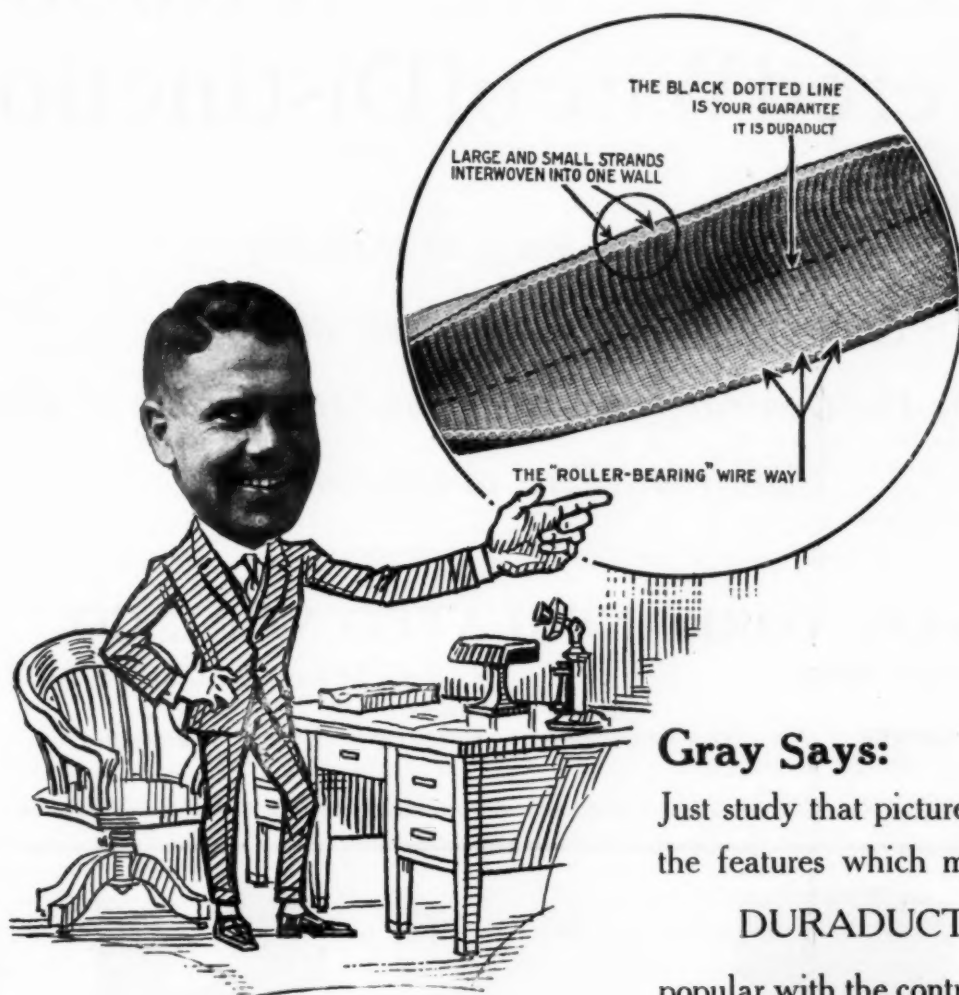
1704 Wellington Avenue, at Paulina
CHICAGO



*Unilets, Uniduct, Outlet Boxes and Covers,
Laundry Fittings, Locknuts and Bushings,
Meter Terminal Fittings, Entrance Fittings,
Conduit Clamps and Hangers, Switch
Boxes, Reelites and AutoReelites.*

UNIDUCT

Reg. U.S. Pat. Office



Gray Jones

That smile of Gray's is the DURADUCT smile—users get it too (because it's a joy to work it).

Gray Says:

Just study that picture. See the features which make

DURADUCT

popular with the contractors.

The Single Interwoven Wall, for instance, prevents blistering and breaking down.

The Roller-Bearing Wireway makes fishing very easy.

The Black Dotted Line shows it is the genuine DURADUCT.

To insure your getting it, don't order just "Loom"—specify DURADUCT.

Tubular Woven Fabric Co.

PAWTUCKET, R. I.

RAVEN CORE—A Rubber Covered Wire of Distinction!

Made by a house of standing.

Specified by all the leading architects.

Used by the Contractors who do the better grade of work.

Can you afford to overlook it?

NEW YORK INSULATED WIRE CO.

Main Office: NEW YORK

Factory: WALLINGFORD, CONN.

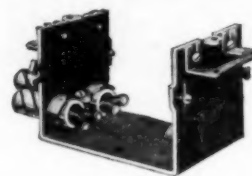
Agencies and Branches:

DENVER

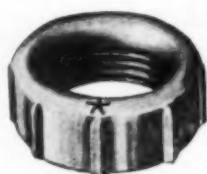
SAN FRANCISCO

CHICAGO

BOSTON



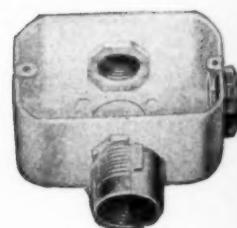
IT PAYS TO USE "THE QUALITY LINE"



HAVE YOU OUR CATALOG NO. 33 E?
WRITE FOR LITERATURE ON

Wirelets

Steel City Electric Co.
PITTSBURGH PENNSYLVANIA



IN 1915 the Insurance Committee of the National Association of Electrical Contractors and Dealers investigated and recommended to their membership the plan of Insurance at Cost as conducted by Lynton T. Block & Co., of St. Louis.

Now in 1921, after six years of experience in dealing with this well known insurance organization, this same committee has expressed its continued unqualified satisfaction in the resolution contained on this page.

This resolution is therefore presented in this form for the benefit and information of the membership at large.

SIX YEARS OF SATISFACTION 1915-1921

SIX YEARS of satisfactory dealings with Lynton T. Block & Co., Underwriters, of St. Louis, has prompted your Insurance Committee again to go on record as endorsing their plan of insurance, with the attendant saving in money to our members.

Every Insurance Policy placed with this concern increases its ability to serve you better, both in the lowered rates it has influenced and the yearly saving it accomplishes. If the bulk of our members would avail themselves of this tangible advantage of membership, the saving made possible by the action of your Committee would probably total **Fifty Thousand Dollars Every Year.** Volume of business will do this. Your Insurance Committee has done its part; you should do yours and not only save money for yourself, but help your fellow members to save this enormous aggregate.

EVERY promise made by this underwriting organization has been more than faithfully kept, and the advantages have from time to time been increased without any solicitation or additional obligation on the part of the Assured.

Insurance with them costs less than it did six years ago, the coverage is more complete, and the savings are increased wherever deserved. The individual experience of the individual risk is now taken into account in determining the savings.

Inquiry addressed to Lynton T. Block & Co., Underwriters, St. Louis, Mo., or to the Secretary of your Association will bring full particulars regarding Insurance at Cost.

THE RESOLUTION SPEAKS FOR ITSELF—

RESOLUTION

Recognizing the insurance problems confronting this organization, and for the purpose of procuring the best indemnity at the lowest cost, the Executive Committee of this Association, after a careful and thorough investigation by its Insurance Committee in 1915, endorsed the plan of "Insurance at Cost," as conducted by Lynton T. Block & Co., Underwriters, of St. Louis, Mo., through their several Insurance organizations, and recommended to the members of this Association that they avail themselves of the saving in cost and the high character of service afforded.

WHEREAS, a large proportion of the members of this Association have for the past six years, carried their insurance through Lynton T. Block & Co., and found the saving in money to be substantial and the service to be highly satisfactory, and

WHEREAS, the Executive Committee deems these insurance arrangements to be among the important benefits which have been provided for members of this Association;

NOW, THEREFORE, BE IT RESOLVED, That the Executive Committee ratify its former endorsement of the Insurance and Service afforded by Lynton T. Block & Co. and urge upon those members not now taking advantage of it to lend their cooperation in this respect and communicate with the St. Louis Office of Lynton T. Block & Co. in matters pertaining to Fire, Casualty and Workmen's Compensation Insurance, with a view to adding momentum to this movement and securing for themselves the benefits which are made available for them.

BE IT FURTHER RESOLVED, That the Insurance Committee of the N. A. E. C. & D. finds the affairs of the various Insurance organizations of Lynton T. Block & Co. to be administered honestly and skillfully; financially sound and worthy of confidence; that each such organization has ample assets for the protection of its Policy Holders, being backed in each case by Assets in excess of \$2,000,000, which serves as a direct guarantee for the payment of losses and the elimination of any assessment liability whatsoever.

The Insurance Organizations herein referred to are:—

Employers Indemnity Corporation,
Utilities Indemnity Exchange,
Utilities Fire Exchange.

St. Louis, Mo.
St. Louis, Mo.
Kansas City, Mo.

Exchange Mutual Indemnity Insurance Co., Buffalo, N. Y.

(Signed) J. A. Fowler, Chairman Insurance Committee,
National Ass'n Electrical Contractors & Dealers.

BUYERS' GUIDE

of some of the products manufactured by the concerns advertising in this issue. To be listed here is a badge of reliability. To buy from here is a guarantee of satisfaction. When you buy from here please mention the NATIONAL ELECTRAGIST

FLOATING BATTERY SYSTEM

Valley Electric Co.

ADAPTERS, LAMP

Bryant Elec. Co.
General Elec. Co.
Hubbell, Inc., Harvey

ADJUSTERS, CORD AND LAMP

McGill Mfg. Co.

ALARMS, BURGLAR, FIRE

Conn. Telephone & Elec. Co.
Ostrander & Co.
Partrick & Wilkins Co.
Stanley & Patterson.
Western Elec. Co.

ANCHORS, GUY, ALSO RODS

Richards & Co., Geo.

ANNUNCIATORS

Ansonia Elec. Co.
Conn. Telephone & Elec. Co.
Edwards & Co., Inc.
Ostrander & Co., W. R.
Partrick & Wilkins Co.
Stanley & Patterson.

ARRESTERS, LIGHTNING

General Elec. Co.
Westinghouse Elec. & Mfg. Co.

ASBESTOS WOOD

Johns-Manville, Inc.

ATTACHMENTS, SOCKET

Hubbell, Inc., Harvey

BATTERIES, DRY

Manhattan Elec. Supply Co.
Stanley & Patterson.

BATTERY CHARGING OUTFITS

Nat'l. Carbon Co.
Valley Electric Co.

BELLS, ELECTRIC

Ansonia Elec. Co.
Connecticut Tel. & Elec. Co.
Electrical Sales Co.
Manhattan Elec. Supply Co.
Ostrander & Co., W. R.
Partrick & Wilkins.
Schwarze Elec. Co.
Stanley & Patterson.

BENDERS, CONDUIT

Steel City Elec. Co.
Thomas & Betts Co.

BLOCKS, MOLDING

Bryant Electric Co.
Roberts Elec. Sup. Co., H. C.

BOOKS, ELECTRICAL

Audel & Co.
National Ass'n Elec't. Con. & Dealers.

BOLTS, TOGGLE

Cutter Co., Geo.
National Metal Molding Co.

BOXES, CONDUIT

Adapti Mfg. Co.
Appleton Elec. Co.
Chicago Fuse Mfg. Co.
Columbia Metal Box Co.
Cutter Co., Geo.
Hart Mfg. Co.
National Metal Molding Co.
Sprague Elec. Works.
Steel City Elec. Co.
Thomas & Betts Co.
Tucker Mfg. Co.
V. V. Fittings Co.

BOXES, FLOOR

Frank Adam Electric Co.
Sprague Elec. Works.
Stanley & Patterson.
Steel City Elec. Co.
Thomas & Betts Co.
Westinghouse Elec. & Mfg. Co.

BOXES, MANHOLE (JUNCTION)

Frank Adam Electric Co.
General Elec. Co.
Johns-Manville, Inc.
Johns-Manville, Inc.

BOXES, METER PROTECTING BOXES

General Elec. Co.
Johns-Manville, Inc.

BOXES, PULL

Columbia Metal Box Co.

BOXES, WOOD OR CABINET

Stanley & Patterson.

BRACKETS, TELEPHONE

Stanley & Patterson.
Western Elec. Co.

BRUSHES

Cutler-Hammer Mfg. Co.
General Elec. Co.

BUSHINGS, BOX AND CABINET

Fralick & Co., S. R.
Pass & Seymour.
Westinghouse Elec. & Mfg. Co.

CABINETS, METAL

Frank Adam Electric Co.
Columbia Metal Box Co.
Cutter Co., Geo.
Hart & Hegeman.
Thomas & Betts Co.
Wardack Elec. Mfg. Co.

CHARGING OUTFITS

General Elec. Co.
Robbins & Myers Co.
Valley Electric Co.
Westinghouse Elec. & Mfg. Co.

CIRCUIT BREAKERS, AUTOMATIC

General Elec. Co.
Westinghouse Elec. & Mfg. Co.

CLAMPS, CABLE SUPPORTING

Steel City Elec. Co.

CLAMPS, GROUND CONNECTION

Columbia Metal Box Co.
Fralick & Co., S. R.
General Elec. Co.
Hart Mfg. Co.
Machen Elec't. Mfg. Co.
Minerallac Elec. Co.
National Metal Molding Co.
Sherman Mfg. Co., H. B.
Sprague Elec. Works.
Thomas & Betts Co.

CLAMPS TEST

Appleton Elec. Co.

CLEANERS, VACUUM

Western Elec. Co.

CLIPS, FUSE

Bryant Electric Co.
Johns-Manville, Inc.

COILS, CHOKE

General Elec. Co.
Westinghouse Elec. & Mfg. Co.

COLORING AND FROSTING, INCAN-

DESCENT LAMPS
McGill Mfg. Co.

CONCENTRIC, WIRING FITTINGS

General Elec. Co.

CONDENSERS, TELEPHONE AND

TELEGRAPH
Connecticut Tel. & Elec. Co.
Western Elec. Co.

CONDUIT, INTERIOR

Alphaduct Co.
American Circular Loom Co.
Amer. Wiremold Co.
Clifton Mfg. Co.
Enameled Metals Co.
National Metal Molding Co.
Short Elect. Mfg. Co.
Sprague Elec. Works.
Steel City Elec. Co.
Trumbull Elec. Mfg. Co.
Tubular Woven Fabric Co.

CONDUIT, UNDERGROUND

Johns-Manville, Inc.

CONNECTORS, BRASS CYLINDER

Bryant Elec. Co.
Frankel Connector Co.
Trumbull Elec. Mfg. Co.

CONNECTORS, EXTENSION CORD

Hubbell, Inc., Harvey.

CONNECTORS, FIXTURE

H. B. Sherman Mfg. Co.

CONNECTORS, SLEEVE

Bryant Elec. Co.

CONNECTORS, SOLDERLESS

Columbia Metal Box Co.
Dossert & Co.
Frankel Connector Co.
Westinghouse Elec. & Mfg. Co.

COOKING UTENSILS, ELECTRIC

Manhattan Elec. Supply Co.
Westinghouse Elec. & Mfg. Co.

COUPLINGS, SHAFT

General Elec. Co.

CUTOUTS

Arrow Electric Co.
Bryant Elec. Co.
Chicago Fuse Mfg. Co.
Columbia Metal Box Co.
Cutter Co., Geo.
Freeman Elec. Co., E. H.
General Elec. Co.
Hart & Hegeman Mfg. Co.
Johns-Manville, Inc.
Johns-Manville, Inc.
Pass & Seymour, Inc.
Trumbull Elec. Mfg. Co.
Westinghouse Elec. & Mfg. Co.

DECORATIVE LIGHTING

General Elec. Co.

DYNAMOMETERS

Sprague Elec. Works

FANS, DIRECT CURRENT

Western Elec. Co.
Westinghouse Elec. & Mfg. Co.

FANS, HANGERS

Adam Electric Co., Frank

FANS, MOTOR

Century Elec. Co.
Emerson Elec. Mfg. Co.
General Elec. Co.
Manhattan Elec. Supply Co.
Robbins & Myers Co.
Sprague Elec. Works.
Western Elec. Co.
Westinghouse Elec. & Mfg. Co.

FARM LIGHTING GENERATORS

Valley Electric Co.

FIBRE

Johns-Manville, Inc.

FITTINGS, FIXTURE, IRON

Appleton Elec. Co.
Beardslee Chandelier Mfg. Co.
Benjamin Electric Mfg. Co.
Bryant Elec. Co.
Cutter Co., Geo.
Electric Appliance Co.
Fralick & Co., S. R.
General Elec. Co.
National Metal Molding Co.
Sprague Elec. Works.
Steel City Electric Co.
Thomas & Betts Co.
Trumbull Electric Mfg. Co.
Westinghouse Elec. & Mfg. Co.

FIXTURES, SHOW CASES AND

WINDOWS

Acme Ltg. Fixture Co.
Artistic Ltg. Fix. Corp'n.
Beardslee Chandelier Mfg. Co.
Benjamin Electric Mfg. Co.
Clinton Metal Lamp Co.
Faries Manufacturing Co.
Frink, Inc., I. P.
Frankel Light Co.
National X-Ray Reflector Co.
Planelite Co., Inc.
Shapiro & Aronson, Inc.
Weinhoff Trading Corp'n.

FIXTURE STUDS

Fralick & Co., S. R.

FURNACES, ELECTRIC

General Electric Co.

FUSES, ENCLOSED

Bryant Electric Co.
Chicago Fuse & Mfg. Co.
General Electric Co.
Johns-Manville, Inc.
Westinghouse Elec. & Mfg. Co.

FUSES, OPEN LINK

Chicago Fuse & Mfg. Co.
General Electric Co.

FUSES, TELEPHONE

Chicago Fuse & Mfg. Co.
Westers Elec. Co.

GENERATORS, LIGHT AND POWER

Emerson Elec. Mfg. Co.
General Electric Co.
Robbins & Myers Co.
Sprague Electric Works.
Westinghouse Elec. & Mfg. Co.

GLASSWARE

National X-Ray Reflector Co.

GUARDS, LAMP

Hubbell, Inc., Harvey.
McGill Mfg. Co.

HANGERS, ARC LAMP

Cutter Co., Geo.
General Electric Co.

HANGERS, CONDUIT AND CABLE

Appleton Elec. Co.
Columbia Metal Box Co.
Minerallac Elec. Co.
Pass & Seymour, Inc.
Steel City Elec. Co.
Thomas & Betts Co.

HANGERS, FIXTURE AND BOX

Cutter Co., Geo.

HANGERS, LAMP

Bryant Elec. Co.

HEATERS, LIQUID

General Electric Co.
Westinghouse Elec. & Mfg. Co.

HEATING DEVICES

Commonwealth Edison Co.
Westinghouse Elec. & Mfg. Co.

HOLDERS, SHADE

Hubbell, Inc., Harvey.
National X-Ray Reflector Co.

HOLDERS, BATTERY

Ostrander & Co., W. R.
Stanley & Patterson.

INSTRUMENTS, INDICATING

General Electric Co.
Norton Electrical Instrument Co.
Westinghouse Elec. & Mfg. Co.

INSTRUMENTS, LAMP TESTING

General Elec. Co.

INSTRUMENTS, MINIATURE SWITCH

BOARD

General Elec. Co.
Westinghouse Elec. & Mfg. Co.

INSTRUMENTS, POCKET

Connecticut Tel. & Elec. Co.

INSTRUMENTS, RECORDING AND

CURVE DRAWING
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

INSTRUMENTS, TESTING

General Elec. Co.
Westinghouse Elec. & Mfg. Co.

INSULATION, MOLDED

Johns-Manville, Inc.
Johns-Manville, Inc.

INSULATORS, CANOPY

General Elec. Co.

INSULATORS, HIGH VOLTAGE

General Elec. Co.
Stanley, Arthur F.
Johns-Manville, Inc.
Westinghouse Elec. & Mfg. Co.

INSULATORS, TREE

Cutter Co., Geo.

IRONS, CURLING

Westinghouse Elec. & Mfg. Co.

IRONS, SOLDERING

General Elec. Co.

JOINTS, CABLE

Dossert & Co.

JOINTS, FIXTURE INSULATING

Thomas & Betts Co.

LAMPS, ARC

General Elec. Co.
Westinghouse Elec. & Mfg. Co.

LAMPS, AUTOMOBILE

Connecticut Tel. & Elec. Co.

LAMPS, INCANDESCENT

Edison Lamp Works.
General Electric Co.
Hubbell, Inc., Harvey.
Hygrade Lamp Co.
National Lamp Works.
Nileco Lamp Works, Inc.
Johns-Manville, Inc.

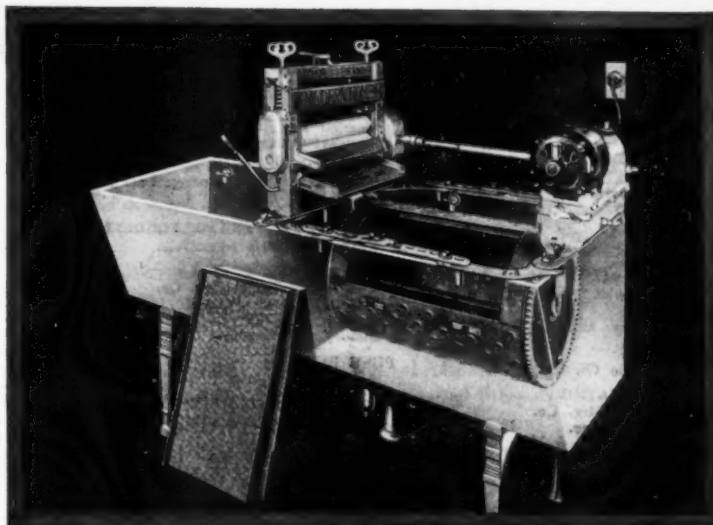
If Competition is Cutting Into Your Clothes Washer Sales Volume—Sell the "Modern Home Washer"—

Here is a non-competitive clothes washer which has demonstrated its ability to bring new profits to clothes washer dealers.

The Modern Home Washer is essentially a clothes washer for the home, which every dealer can profitably handle in addition to his present clothes washer line.

The Modern Home Washer "fits any tub" and "does it all." It conserves useful space, eliminates troublesome hand filling, draining and cleansing. It is an entirely different clothes washer in a class by itself.

We want dealers who are looking for "a clothes washer that will boost sales without boosting service costs" to write us now. We are making new territory allotments and can offer a proposition that will pay the utmost in profits. Don't delay, write at once.



MODERN HOME
TRADE MARK REGISTERED
WASHER
FITS ANY TUB

Home Devices Corporation

Main Office and Showrooms

11 East 42nd St., New York, near Grand Central Terminal

Telephones—Murray Hill 9343-9344.



Century

Automatic Start Induction POLYPHASE MOTORS



7½ HP. Rating

The power factor of the starting current is high (75% to 85%), which materially assists in maintaining good voltage, consequently ability to develop good static torque.

*Temperature Rise Not More Than
40° Centigrade*

½ to 60 HP.

THEY KEEP-A-RUNNING

CENTURY ELECTRIC COMPANY

St. Louis, Mo., U. S. A.

SALES OFFICES IN PRINCIPAL CITIES

BUYER'S GUIDE—Continued

LAMPS, PHOTO-ENGRAVING
General Elec. Co.

LAMPS, TROUBLE, AUTOMOBILE,
PORTABLE, HAND
Connecticut Tel. & Elec. Co.
Stanley & Patterson.

LIGHTS, STAGE
Sprague Elec. Wks.
Western Elec. Co.
National X-Ray Reflector Co.

LOCKS, AUTOMOBILE
Connecticut Tel. & Elec. Co.

LOCKNUTS
Fralick & Co., S. R.

LUGS, TERMINAL
Cutter Co., Geo.
Dossert & Co.
Trumbull Elec. Mfg. Co.

MAGNETIZERS
Valley Electric Co.

MOLDED INSULATION
Cutler-Hammer Mfg. Co.
Johns-Manville, Inc.
Westinghouse Elec. & Mfg. Co.

MOLDINGS, METALLIC
Appleton Elec. Co.
National Metal Molding Co.

MOTOR GENERATORS
General Electric Co.
Sprague Elec. Wks.
Valley Electric Co.
Westinghouse Elec. & Mfg. Co.

MOTORS, POWER
Century Electric Co.
Emerson Elec. Mfg. Co.
General Elec. Co.
Robbins & Myers Co.
Sprague Elec. Works.
Valley Electric Co.
Western Elec. Co.
Westinghouse Elec. & Mfg. Co.

OZONIZERS, INDUSTRIAL
Sprague Elec. Wks.

PADS, HEATING
Landers, Frary & Clark.

PAINTS AND COMPOUNDS
D & W Fuse Co.
General Elec. Co.
Johns-Manville, Inc.
McGill Mfg. Co.
Minerallac Elec. Co.
Standard Underground Cable Co.

PANEL BOARDS
Adam Electric Co., Frank.
Plainville Elec'l. Products Co.
Trumbull Electric Mfg. Co.
Westinghouse Elec. & Mfg. Co.

PERCOLATORS
Westinghouse Elec. & Mfg. Co.

PLANTS, LIGHTING
General Elec. Co.
Western Elec. Co.
Westinghouse Elec. & Mfg. Co.

PLATES, FLUSH SWITCH
Arrow Electric Co.
Bryant Elec. Co.
Connecticut Tele. & Elec. Co.
Hubbell, Inc., Harvey.

PLUGS AND RECEPTACLES
Arrow Electric Co.
Bryant Electric Co.
Chicago Fuse Mfg. Co.
Cutter Co., Geo.
Freeman Electric Co.
General Elec. Co.
Hart Mfg. Co.
Hubbell, Inc., Harvey
Johns-Manville, Inc.
Johns-Pratt Co.
Machen Elec. Mfg. Co.
National Metal Molding Co.
Pass & Seymour, Inc.
Sprague Elec. Wks.
Stanley & Patterson.
Trumbull Electric Mfg. Co.
Western Elec. Co.
Westinghouse Elec. & Mfg. Co.

PLUGS, SPARK
Western Elec. Co.

POLE LINE HARDWARE
Cutter Co., Geo.
Johns-Manville, Inc.
National Metal Molding Co.

PORCELAIN, STANDARD
General Elec. Co.
Thomas & Sons, R.
Trenton Porcelain Co.

PORTABLES
Beardslee Chandler Mfg. Co.
National X-Ray Reflector Co.

POSTS, LAMP, ORNAMENTAL
Cutter Co., Geo.

POTS, MELTING
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

PROJECTORS, ELECTRIC
Cutter Co., Geo.
General Elec. Co.
National X-Ray Reflector Co.
Western Elec. Co.

PROTECTORS, LINEMEN'S
Minerallac Elec. Co.

PROTECTORS, THREAD, CONDUIT
Enameled Metals Co.

PROTECTORS
Connecticut Tel. & Elec. Co.
Minerallac Elec. Co.
Partrick & Wilkins Co.
Stanley & Patterson.

PUSH BUTTONS
Machen Elec. Mfg. Co.

RADIATORS, ELECTRIC
Westinghouse Elec. & Mfg. Co.

RADIO APPARATUS
Eby Mfg. Co., H. H.
General Elec. Co.
Grebe & Co., Inc.
Jewett Mfg. Co.
Martin Copeland Co.
Multiple Storage Bat. Co.
N. Y. Hard Rubber Turning Co.
Ostrander & Co., W. R.
Queens Radio Co.
Radio Courses, Inc.
Scientific Eng. Association
Stanley & Patterson
Tait Knob & Dial Co.
Triangle Electro Trad. Co.
Trumbull Elec. Mfg. Co.
United Radio Laboratories
Victor Radio Corp'n.
Waterbury Button Co.
Workrite Mfg. Co.
World Radio Corp'n.
Zamoiski Co., Jos. M.

RANGES, ELECTRIC
Westinghouse Elec. & Mfg. Co.

REFLECTORS
National X-Ray Reflector Co.

REFLECTORS, PORCELAIN, ENAM-
ELED, IRON AND STEEL
Cutter Co., Geo.
Hubbell, Inc., Harvey.

REGULATORS, VOLTAGE
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

RHEOSTATS
General Elec. Co.
Valley Electric Co.
Westinghouse Elec. & Mfg. Co.

ROSETTES
Adapti Mfg. Co.
Arrow Electric Co.
Bryant Elec. Co.
Crouse-Hinds Co.
Freeman Elec. Co., E. H.
General Elec. Co.
Hubbell, Inc., Harvey.
National Metal Molding Co.
Pass & Seymour, Inc.
Trumbull Electric Mfg. Co.

SAMOVAR
Westinghouse Elec. & Mfg. Co.

SHADES, METALLIC
Hubbell, Inc., Harvey.
Ostrander & Co., W. R.

SIGNALS, FACTORY AND OFFICE
Stanley & Patterson.

SIGNS, EXIT
Sprague Elec. Wks.

SOCKETS AND RECEPTACLES
Appleton Elec. Co.
Arrow Electric Co.
Cutter Co., Geo.
Conn. Elec. Mfg. Co.
Freeman Electric Co., E. H.
General Elec. Co.
Hubbell, Inc., Harvey.
Johns-Manville, Inc.
National Metal Molding Co.
Ostrander & Co., W. R.
Pass & Seymour, Inc.
Propp Co., H.
Scars, H. D.
Stanley & Patterson.
Trumbull Electric Co., Inc.

SOLDERLESS CONNECTORS
Frankel Connector Co.

SOLDERING COMPOUNDS
Westinghouse Elec. & Mfg. Co.

STARTERS, MOTOR
General Elec. Co.

STERILIZERS, WATER, ELECTRIC
Sprague Elec. Wks.

STOVES, DISC
Westinghouse Elec. & Mfg. Co.

STRAPS AND CLAMPS, CONDUIT
Fralick & Co., S. R.

SUPPLIES, ELECTRICAL
Adam Electric Co., Frank.
Amer. Elec'l. Supply Co.
Baltimore Elec'l. Supply Co.
Brooklyn Elec'l. Supply Co.
Doubleday-Hill Elec. Co.
Electric Appliance Co.
Electric Supply & Equip. Co.
Fobes Supply Co.
Fullerton, F. W. L.
Nat'l. Elec'l. Supply Co.
Newark Elec'l. Supply Co.
Ostrander & Co., W. R.
Philadelphia Elec. Co.
Roberts Elec. Supply Co., H. C.
Rumsey Electric Co.
Southern Electric Co.
Stanley & Patterson.
Western Electric Co.

SWITCHBOARDS, LIGHT AND POWER
Adam Electric Co., Frank.
Bryant Electric Co.
Cutter Co., Geo.
General Elec. Co.
Plainville Elec'l. Products Co.
Sprague Elec. Wks.
Trumbull Elec. Mfg. Co.
Westinghouse Elec. & Mfg. Co.
Wurdack Elec. Mfg. Co.

SWITCHES, BABY KNIFE
Bryant Elec. Co.
General Elec. Co.
Trumbull Electric Mfg. Co.

SWITCHES, BATTERY
Hubbell, Inc., Harvey.
Manhattan Elec'l. Supply Co.
Ostrander & Co., W. R.
Partrick & Wilkins Co.
Trumbull Electric Mfg. Co.

SWITCHES, DISCONNECTING
General Electric Co.
Westinghouse Elec. & Mfg. Co.

SWITCHES, FIXTURE
Hubbell, Inc., Harvey.
Pass & Seymour, Inc.

SWITCHES, KNIFE
Adam Elec. Co., Frank.
General Elec. Co.
Hart Mfg. Co.
Trumbull Elec. Mfg. Co.
Westinghouse Elec. & Mfg. Co.

SWITCHES, SAFETY
Adam Elec. Co., Frank.
General Elec. Co.
Johns-Manville, Inc.
Johns-Pratt Co.
Square D. Company
Trumbull Elec. Mfg. Co.

SWITCHES, SNAP
Arrow Electric Co.
Connecticut Tel. & Elec. Co.
General Elec. Co.
Hart Mfg. Co.
Hubbell, Inc., Harvey.
Machen Elec. Mfg. Co.
National Metal Molding Co.
Pass & Seymour, Inc.
Trumbull Electric Mfg. Co.

SWITCHES, TIME, AUTOMATIC
Berry, A. Hall
General Elec. Co.

SWITCHES, VOLTMETER
Frank Adam Electric Co.
Trumbull Elec. Mfg. Co.

TAPE, INSULATING
Bishop Gutta-Percha Co.
General Elec. Co.
Johns-Manville, Inc.
N. Y. Insulated Wire Co.
Westinghouse Elec. & Mfg. Co.

TAPS, CURRENT
Hubbell, Inc., Harvey.

TELEPHONES
Connecticut Tel. & Elec. Co.
Stanley & Patterson
Western Elec. Co.

TERMINALS, CABLE
Standard Underground Cable Co.

TERMINALS, TELEPHONE
Standard Underground Cable Co.
Western Elec. Co.

TERMINALS, UNDERGROUND
SERVICE
Dossert & Co.

TOASTERS
Westinghouse Elec. & Mfg. Co.

TOOLS, BORING, ELECTRICIAN'S
Electric Appliance Co.
Stanley & Patterson.

TOOLS, COMMUTATOR TRUING
General Elec. Co.

TOOLS, PORTABLE, HAND
General Elec. Co.

TRANSFORMERS
Connecticut Tel. & Elec. Co.
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

VULCANIZERS, ELECTRIC
Westinghouse Elec. & Mfg. Co.

WARMERS, FOOT AND RUG
Westinghouse Elec. & Mfg. Co.

WASHERS, CLOTHES
Home Devices Corp'n.
Western Elec. Co.

WASHERS, DISH
Western Elec. Co.

WELDING MACHINES, ELECTRIC
General Electric Co.
Westinghouse Electric & Mfg. Co.

WIRE, ANNUNCIATOR AND OFFIC
American Steel & Wire Co.
General Elec. Co.
Hazard Mfg. Co.
Standard Underground Cable Co.

WIRE, ARMORED CABLE
Hazard Mfg. Company.
National Metal Molding Co.
Sprague Elec. Wks.

WIRE, AUTOMOBILE
General Elec. Co.
Indiana Rubber & Ins. Wire Co.
N. Y. Ins. Wire Co.
Rome Wire Co.
Safety Ins. Wire & Cable Co.

WIRE, BARE COPPER
Hazard Mfg. Company.
Rome Wire Co.
Standard Underground Cable Co.

WIRE, FUSE
Appleton Electric Co.
Chicago Fuse Mfg. Co.
General Elec. Co.

WIRE, GALVANIZED STRAND
Hazard Mfg. Company.

WIRE, IRON
American Steel & Wire Co.

WIRE, LEAD ENCASED
American Steel & Wire Co.
Atlantic Ins. Wire & Cable Co.
Bishop Gutta-Percha Co.
General Electric Co.
Hazard Mfg. Co.
Indiana Rubber & Ins. Wire Co.
N. Y. Insulated Wire Co.
Standard Underground Cable Co.
Western Elec. Co.

WIRE, MAGNET
American Steel & Wire Co.
Ansonia Electrical Co.
General Electric Co.
Hazard Mfg. Co.
Rome Wire Co.
Standard Underground Cable Co.
Western Electric Co.

WIRE, RUBBER COVERED
A. A. Wire Co.
American Steel & Wire Co.
Atlantic Ins. Wire & Cable Co.
Belden Mfg. Co.
Bishop Gutta-Percha Co.
Boston Ins. Wire & Cable Co.
Detroit Insulated Wire Co.
General Electric Co.
Habitshaw Elec. Cable Co.
Hazard Mfg. Company.
Indiana Rubber & Ins. Wire Co.
N. Y. Insulated Wire Co.
Rome Wire Co.
Standard Underground Cable Co.
Western Elec. Co.

WIRE, TELEPHONE
A. A. Wire Co.
Rome Wire Co.
Western Electric Co.

WIRE, WEATHERPROOF
American Steel & Wire Co.
Ansonia Electrical Co.
General Electric Co.
Hazard Mfg. Co.
Rome Wire Co.
Western Elec. Co.

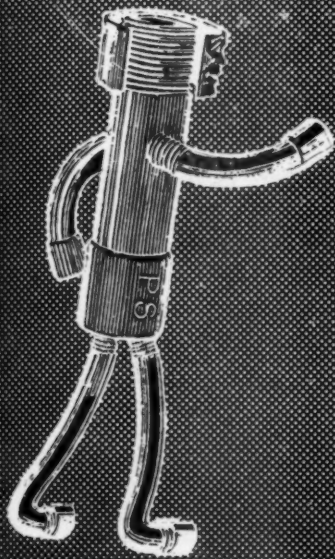
WIRELETS
Steel City Elec. Co.

PITTSBURGH

THREAD PROTECTED
ENAMELED CONDUIT

STANDARD

PATENTED



Working Economy

GO over the details of a previous job. Unnoticed at the time, or taken as a matter of course, checking up now you find delays and let downs—every one a profit leak.

Put Pittsburgh Standard on the job—it eliminates many of these delays. Speeds up the work and makes the job better. Reaches the job ready to install. No running dies over pipe ends, no reversing couplings. Patented Thread Protectors keep threads sharp, true and clean.

P. S. costs no more than ordinary enameled conduit. Check up your first job where it has been installed. The profit increase shows the time saved—real working economy—bringing extra profit and time for more jobs.

ENAMELED
PITTSBURGH, PA.
METALS CO.

"DIAMOND H"

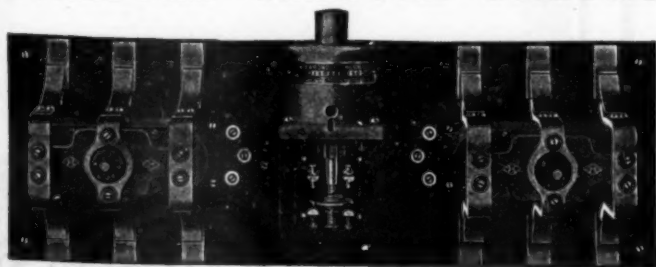
REMOTE CONTROL SWITCHES
LAMINATED BRUSHES
IRONCLAD MECHANISM
SELF CLEANING CONTACTS

FOR
ALTERNATING
CURRENT



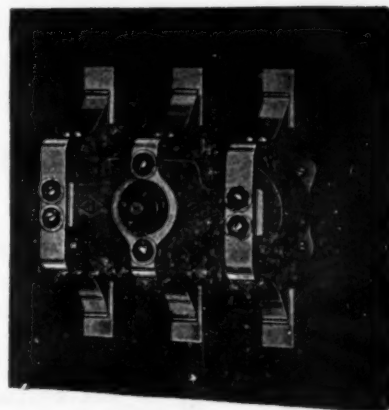
FOR
DIRECT
CURRENT

DOUBLE POLE—THREE POLE—FOUR POLE



Double Throw Combination

For two sources of supply with common load. Transfers automatically upon failure of one source.



Type "F" 3-Pole Back Connected
Remote Control Switch

Double Pole		TYPE "F"		Triple Pole	
Catalog Number	Ampere Capacity	List Price	Catalog Number	List Price	
730	30	\$36.00	790	\$43.20	
740	60	48.00	800	54.00	
750	75	60.00	810	67.20	
760	100	83.60	820	108.00	
770	150	108.00	830	124.80	
780	200	122.40	840	139.20	

Write for Catalogue and Discount Sheet

Made by

THE HART MANUFACTURING CO.

HARTFORD, CONN.,

U. S. A.



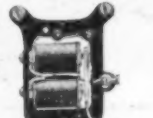
Some of our:



Weatherproof Bell



Electro Mechanical Bell



Competition Bell



Pivoted Armature
Skeleton Bell



Iron Box Bell

ANNUNCIATORS

HOUSE
HOTEL
HOSPITAL
ELEVATOR
MARINE
WOOD OR METAL
ALL STYLES OF DROPS
AND RESETS

BELLS

IRON BOX
WOOD BOX
FIRE-ALARM
SKELETON
VIBRATING
SINGLE STROKE
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MARINE
MULTIPLE
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ALL FINISHES

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PULL CHAIN
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CABINETS
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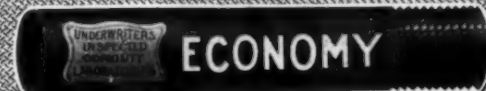
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National Products

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FOR ELECTRICAL
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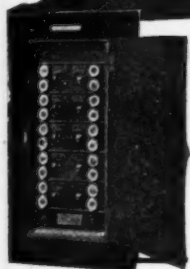
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Only 10 inches
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**Compactness,
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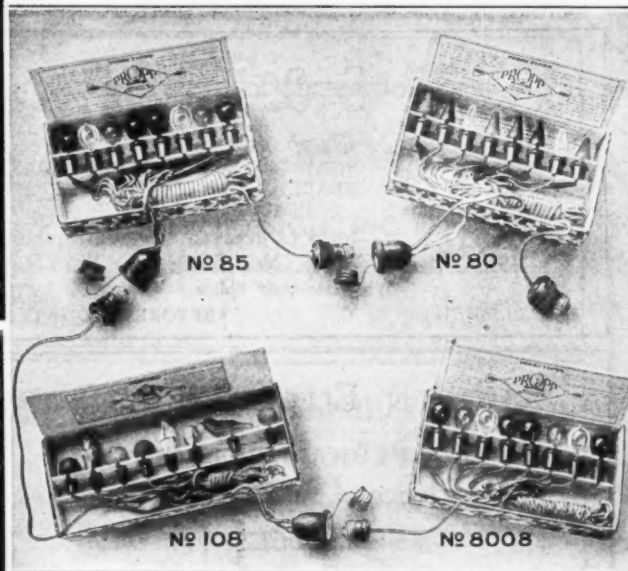
These Three Features Characterize the
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It is extremely neat in appearance and
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The Sets Are Made Up With
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Order thru your Jobber—Specify PROPP

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—TAKES SHADE HOLDER—HAS
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SOCKET—SEATS IN DEEP SOCK-
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HANDSOME IN APPEARANCE
Our Liberal Discounts Mean
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"The Finest Two
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New List Price, 75c

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A jobbing distributor which conducts its business with a full realization of its responsibilities to other branches as well as its own branch of the electrical industry.

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More than 100,000 Square Feet of Floor Space.

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—IF YOU SPECIFY—

X-Ray Reflectors

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Show Window Lighting

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Lighting Fixture Manufacturers

Build your business with S. & A.
Standardized Lighting Fixtures in
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A complete line of
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Brackets, Portables and Metal Shades
VERDELITE PORTABLES
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Prompt shipments from a complete stock of Original, Artistic and Economical Fixture Trimmings, Gas Electric and Combination Brass Fittings, Stampings, Spinnings, Castings and Parts for Fixture Manufacturers and Dealers. Catalog No. 26.

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SWITCH BOARDS PANEL BOARDS FUSE REDUCERS

MADE BY MEN WHO KNOW YOUR
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SEND US YOUR INQUIRIES

THE PLAINVILLE ELECTRICAL PRODUCTS CO.
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for interior wiring

All sizes and voltages.

Thoroughly reliable. Safe.

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"DETROIT" RUBBER COVERED WIRES

Rubber Insulated Wires and Cables

FOR EVERY ELECTRICAL PURPOSE

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Standard or Cordless
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With or without letter
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Telephone Specialists for over
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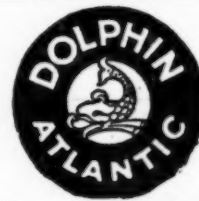


TRADE MARK REGISTERED
A MARK OF QUALITY

Buy Conduit Fittings by this
mark. They are better than
others and cost no more.

S. R. FRALICK & COMPANY

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ATLANTIC Insulated Wires

Atlantic Insulation is notable
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DOLPHIN, Code; TRITON,
High Grade; and NEPTUNE,

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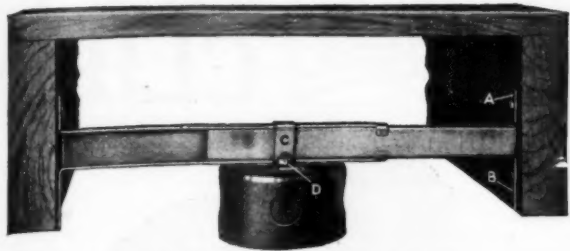
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Buy it of your Jobber in ½ lb., 1 lb.,
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THIS IS E-Z BOX SUPPORT NO. 101
The biggest little labor saver in the market.

Green greenbacks against doughy doughnuts and we win!

E-Z 101 enabled a local contractor to wire a 10-room house with a 3-hour saving over the old method. That saving of labor paid for the necessary supports, paid him \$1.00 profit, and gave him three hours to devote to another job.

A little pull telescopes the support into place—four nails install it—a turn of the screwdriver fastens the box—place your conduit and you're ready for the fixture.

We also make 102 which is the same as 101 with the exception that it is designed for knob and tube, having a loomholder, lath rest and $\frac{3}{8}$ inch male thread for fixture. Write your jobber for folder and discounts.

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Manufacturers Labor Saving Devices

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WEATHERPROOF, SLOW BURNING, ANNUNCIATOR, OFFICE
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Annunciators and Push Buttons.

"Daisy" Floor Treads

The Ansonia Electrical Company, Ansonia, Conn., U.S.A.

Every Thing from Generator to Lamp

H. C. ROBERTS ELECTRIC SUPPLY CO.

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Etc., Etc.

Annunciators and Electrical House Goods

Manufactured by

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Established 1867

51 N. Seventh Street,

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Our Annunciators and House Goods in Stock
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Connecting
a branch
to the main

How the big Power Co's do it

There is economy in making every electrical connection by the Dossert Solderless method—giving greater conductivity than the wire itself—and without the fuss, danger and damage to insulation that high heat imposes.

The Dossert 15th Year Book below illustrates and describes the services of the different connectors.

This is a
**DOSSERT
SOLDERLESS
Cable Tap**

GET THIS BOOK



FREE

Dossert & Co.

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JIFFY CLIPS



An inexpensive, one-hole clamp for pipe, conduit or lead-covered cable. Only one screw or bolt is necessary. Light but strong. Sizes $\frac{1}{8}$ to $1\frac{1}{4}$ in. Made of Steel. Galvanized.

YOUR JOBBER HAS THEM

MINERALAC ELECTRIC COMPANY

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Single Conductor Lead Covered Steel-Tape-Armored Cable.

Have You Considered

the advantages of installing steel-tape-armored cable directly in the ground without conduits or manholes?

There are many ways in which such cables can be employed with great economy in light and power service by eliminating expensive conduits and troublesome overhead lines.

STANDARD Steel-Tape-Armored Cables

have been tested by many years of service, and millions of feet are now in successful operation.

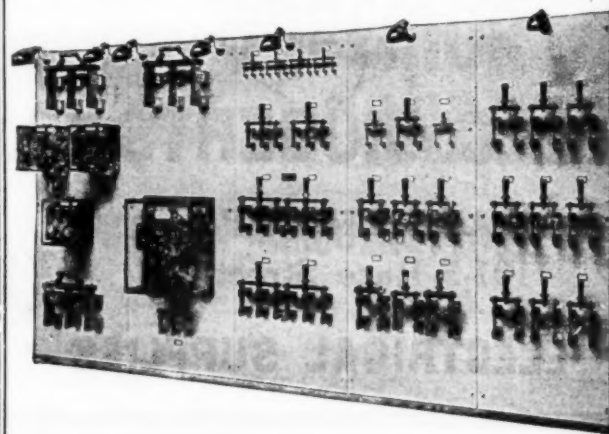
We are exclusive manufacturers in the United States of complete cable systems of this type for light, power, telephone and telegraph service and can supply paper, rubber or varnished cambric insulated cables, complete with joint boxes, junction boxes and terminals.

Write our nearest office for Bulletin on Steel-Tape-Armored Cables.

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KNIFE SWITCHES

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For Sale—One 10K V. A. Maloney Transformer, 550 volts primary, 110-220 volt secondary, which we offer for \$40.00 for immediate sale. It is new and unused. Address: Box P, c/o NATIONAL ELECTRAGIST, 15 West 37th Street, New York City.

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Electrical jobbing and wholesale house. Twelve years' experience as buyer, seeks new connection in this capacity. Live wire, experienced in buying for quick turn-over. Knows trade from A to Z. Mechanical, electrical, engineering education. Now located with large Southern Distributor. Annual purchases over \$1,000,000. Married; age 35. Address: Box O, c/o NATIONAL ELECTRAGIST, 15 West 37th Street, New York City. 2t-12

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Do you want representation in the Eastern territory? We are a selling organization, with a specialty sales force and offices in the heart of New York City. Only manufacturers of Radio, Electrical, Hardware, and Auto Specialties considered. Address: Box N, c/o NATIONAL ELECTRAGIST, 15 West 37th Street, New York City. 1t-11

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Two or three beautiful receiving sets containing detector, amplifier, three tubes and beautiful mahogany cabinet at one-half off the list price. Anyone desiring a radio set that is efficient, compact and beautiful at the same time, will please address Box L, c/o NATIONAL ELECTRAGIST, 15 West 37th Street, New York City. t.f.-10

Wanted—Electrician for New York City Shop, experienced in A.C. and D.C. motor repairs. All around man who has a thorough knowledge of repair shop require-

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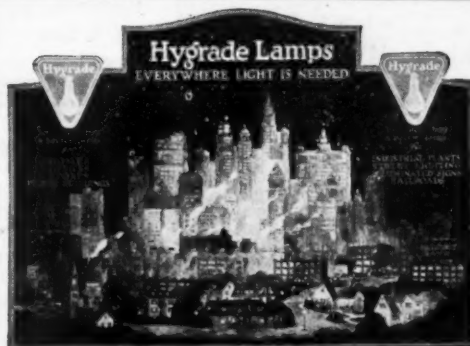
Look carefully. The Market Place is often able to supply you with a real bargain—or with a good position.

DISTRIBUTOR  PRODUCTS

Electrical Xmas Gifts

are becoming more popular each year. If you are not prepared for this demand, send your order to us at once.

**THE PHILADELPHIA ELECTRIC
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130-132 South Eleventh Street
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SOMETHING MORE
to help Hygrade Lamps Sell Themselves

A large window card, lithographed in eight colors, depicting a city at night, brilliant with light.

Adding selling force to the beauty of the picture is the suggestion of places where Hygrade Lamps are used—homes, office buildings, public buildings, factories, elevated roads, streets and signs—all tersely included in the words at the head of the card.

HYGRADE LAMPS
Everywhere Light is Needed

The Hygrade Window Display, 2' high by nearly 3' wide, is furnished to all Hygrade dealers on request

HYGRADE LAMP CO

GENERAL OFFICE
AND FACTORY  SALEM MASS



Again We Say

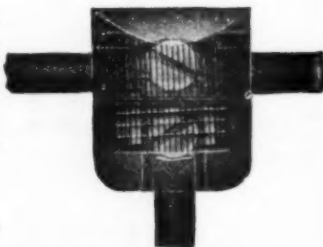
WALGER CONNECTORS

No solder—no blow torch
—80% of your connecting
time and trouble elimin-
ated.

Let your men start using Walgers—
They don't need a tool bag—Simply
carry ample Walgers in their pocket
to wire up the fixtures anywhere.

Approved by the under-
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Jobbers.

S. H. Stover & Co.
Chamber of Commerce
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PITTSBURGH, PA.



We Manufacture:—

Rubber Covered Wire—Solid Conductor,
Stranded Conductor, Flexible Conductor.
Extra Flexible Conductor.

Lamp Cords, Reinforced Cords, Heater
Cord, Brewery Cord, Canvasite Cord, Packing-
house Cord.

Deck Cable, Stage Cable, Border Light
Cable, Flexible Armored Cable.

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Cable, Elevator Annunciator Cable.

Switchboard Cables, Telephone Wire,
Flameproof Wires and Cables, Railway Signal
Wires, High Voltage Wires and Cables.

Automobile Ignition Cables, Automobile
Lighting Cables, Automobile Starting Cables,
Automobile Charging Cables.

Moving Picture Machine Cable.

Boston Insulated Wire & Cable Co.

Main Office and Factory:
Dorchester District
Boston, Mass.

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Hamilton, Ont.

The 100% Electrician Says:



Approved by the
Underwriters



When the manufacturer of Electric Fix-
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Fixture Connectors he improves his prod-
uct and accommodates you. **INSIST.**

H. B. SHERMAN MFG. CO.
BATTLE CREEK MICHIGAN

"I can make con-
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with the

Sherman Fixture Connector

Sherman Fixture Con-
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—assuring high con-
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can't come out—that
saves time. They are
simple—you can't get
the wires in the wrong
place. You need no
acid, solder or blow
torch—a tight con-
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assured.

Send for FREE sample
of the Sherman Fixture
Connector and try it.
They are sold by all
progressive jobbers.

UNIVERSAL ESTIMATE SHEETS

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They Simplify Your Estimating

Get a Supply
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**ASSOCIATION OF ELECTRAGISTS
INTERNATIONAL**

Formerly National Association of Electrical Contractors
and Dealers.

**15 West 37th St.,
New York**

BISHOP

RUBBER INSULATED
WIRES AND CABLES



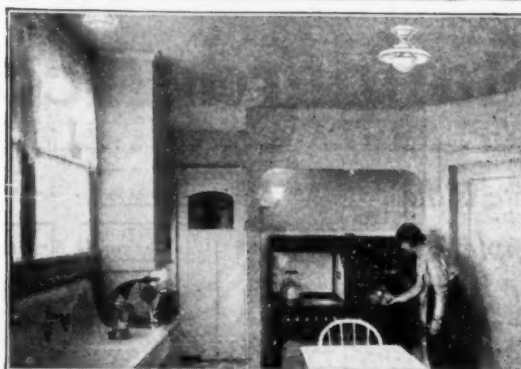
PRODUCTS:

Lead Encased Cables
Armored Submarine Cables
Flexible Cables
Railway Signal Wire
Car Wire and Cables
Automobile Lighting, Starting
and Ignition Cable

BISHOP GUTTA-PERCHA CO.
420 E. 25th ST., NEW YORK

October, 1922

ELECTRICAL MERCHANDISING



In the kitchens surveyed, 70 per cent of the ceiling-fixtures are drop-cords, and only 20 per cent of the ceiling-fixtures are placed at the ceiling. In the kitchen, enclosing

glassware or a deep reflector at the ceiling provides the best lighting. Here is a large field for the electrical merchandising man, dealer or contractor.

ular among ceiling fixtures in the room, while the bowl ranks 11th. Former is equipped with shades these for larger field is foregoing is seen tures in nit does in the redom prop does.

MR. LUCKIESH IS RIGHT
and so is
Baby Denzar

In the kitchen 70 per cent of the ceiling-fixtures are drop-cords and only 20 per cent of the ceiling-fixtures are placed at the ceiling. In the kitchen, enclosing glassware or a deep reflector at the ceiling provides the best lighting. This is a large field for the merchandisers. The predominance of drop-cords in bedrooms and bathrooms provides an opportunity for the sale of better fixtures. The basement also is a field for the sale of reflectors.

Mr. Luckiesh in his article on page 66 of Electrical Merchandising for October and we in our advertisement on page 234 of the same issue both called attention to the large field for a good kitchen light. Baby Denzar does the trick. How many do you want?

BEARDSLEE CHANDELIER MFG. CO.
231 SOUTH JEFFERSON ST. CHICAGO, ILL.



The Contractor

wants a conduit with clean threads and smooth interiors so that he can install and fish it easily. And for the sake of his customer he wants a conduit protected from rust.

Clifton Conduit

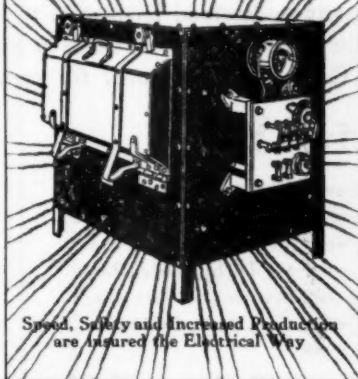
Enameled or Galvanized,

is a practical conduit exactly suited to the contractor's needs. It is made from high-grade steel pipe carefully enameled or galvanized to protect it from corrosion. And the threads are sharp.

Clifton Manufacturing Co.

BOSTON, 61 Brookside Ave. 30
NEW YORK, 26 Cortlandt Street
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SAN FRANCISCO, 509 Mission Street
CHICAGO, 9 So. Clinton Street
Friction Tape. Splicing Compound.

Electrical Industrial Heating Devices of all Kinds



Speed, Safety and Increased Production
are Insured the Electrical Way

Electricity

has become
supreme among

Heating Methods

It has solved heating
problems of diverse
kinds for manufac-
turers of various
commodities.

Because of their simple construction, electric heating devices require no elaborate mechanism. The heat control and saving in floor space are features possessed by no other devices. Electric Industrial Heating Installations require fewer employees for efficient operation.

Phone Randolph 1280, Local 168, or write Industrial Heating Division, Contract Department,

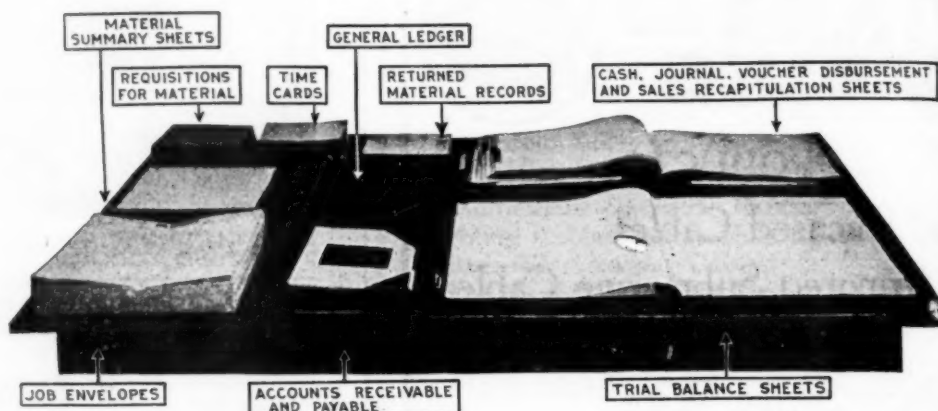
Commonwealth Edison Company

Edison Building, 72 West Adams Street, Chicago

The Electragist Employing a Bookkeeper Should Use the

Standard Accounting System

*Here is the
complete set
just as
it looks
spread out
on an
ordinary
office table*



This is the system adopted by the National Association of Electrical Contractors and Dealers, endorsed by the National Electrical Credit Association, and approved by other branches of the electrical industry.

The Electragial Business Without a Bookkeeper Should Use the

New Business Record

This is an easy and simple way of keeping your accounts without the aid of a bookkeeper. Everything about it is plain and easily understood from start to finish. It consists of only eight forms, and these show the money taken in and paid out; the bills to be collected and to be paid; the general expense, investment and stock. There also is a binder for records, and a simple memo book.

IT TELLS YOU

How much money you have; how much you owe; how much money is due you; how much stock on hand; how much stock you buy; how much you sell; how much it costs you to do business; how much profit you make; or how much you lose; and all other necessary facts regarding your business.

DEPEND ON IT

It is handy, and always ready for you to use; it is reliable and accurate; it saves you time, money, and worry; it settles disputes and saves money for you; it helps you straighten out matters with your banker, your jobber, and the tax collector; it is a necessary factor in your business.

**Look Into this Matter Today and Figure on Starting Your Business Record or
Standard Accounting System**

FULL INFORMATION SENT UPON REQUEST BY THE
ASSOCIATION OF ELECTRAGISTS
INTERNATIONAL

Formerly National Association of Electrical Contractors and Dealers

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TABLE OF CONTENTS

Editorials	Page		Page		Page
The New Constitution	21	Selling to the Ladies	29	Joint Committee	
Christmas Brings Business		Design and Engineering of Feeders	31	George M. Chapman Dies	
Electric Leagues		Joint Business Development Committee	34	Pittsburgh Electric Show	
The Electragnet Slogan		Contracting	38	Activities in Canada	
Meet Mister Moss		Code Chats	40	Christmas Helps	
The Supply Jobber and Electragnet	23	Organization Activities	42	Denver League Plans	
Make It an Electrical Christmas	26	The 1923 Convention		News Notes	
		Baltimore Meeting		Manufacturing	55

ADVERTISING INDEX

A	Page	G	Page	Q	Page
Acme Lighting Fixture Co.	75	General Electric Co.	17-20 Insert	Queens Radio Co.	Radio Supplement
Adam Electric Co., Frank	63				
Alphaduct Co.	62				
American Circular Loom Co.	76	H		R	
American Electrical Supply Co.	74	Hart Mfg. Co.	71	Robbins & Myers Co.	10
American Steel and Wire Co.	76	Hart & Hegeman Mfg. Co.	3	Roberts Elec. Supply Co., H. C.	77
Ansonia Electrical Co.	77	Hazard Mfg. Co.	62	Radio Courses, Inc.	Radio Supplement
Appleton Electric Co.	64	Home Devices Corp'n	69	Radio Service Supplement	85
Arrow Electric Co.	11	Hubbell, Inc., Harvey	61	Rumsey Elec. Co.	74
Artistic Lighting Fixture Corporation	75	Hygrade Lamp Co.	79		
Atlantic Insulated Wire & Cable Co.	76			S	
				Safety Insulated Wire & Cable Co.	83
B		I		Schwarze Electric Co.	83
Baltimore Electrical Supply Co.	74	Indiana Rubber & Insulated Wire Co.	83	Sears, Henry D.	12
Beardslee Chandelier Mfg. Co.	81			Shapiro & Aronson, Inc.	75
Benson, Alex R.	76	J		Sherman Mfg. Co., H. B.	80
Berry, A. Hall	2	Jewett Mfg. Corp'n	Back Cover	Society for Electrical Development	8
Bishop Gutta-Percha Co.	81	Jobbers' Quick Reference	74	Southern Electric Co.	74
Block & Co., Lynton T.	67	Johns-Manville, Inc.	4 and 5	Sprague Electric Works	1, 73
Boston Insulated Wire & Cable Co.	80			Square D Company	6 and 7
Bryant Electric Co.	9	L		Standard Accounting System	82
Brooklyn Electrical Supply Co.	74	Lighting Fixture Ready Reference	75	Standard Underground Cable Co.	78
Buyers' Guide	68, 70			Stanley, Arthur F.	83
Business Record	82	M		Stanley & Patterson	Second Cover
		Market Place	79	Steel City Electric Co.	66
C		Mineralac Elec. Co.	78	Stover Co., S. H.	88
Century Electric Co.	69	Martin-Copeland Co.	Radio Supplement	Sunraid Radio Co.	Radio Supplement
Chicago Fuse Mfg. Co.	Radio Supplement				
Circle Radio Co.	Radio Supplement	N		T	
Clifton Mfg. Co.	81	National Executive Committee	14	Tait Knob & Dial Co.	Radio Supplement
Clinton Metal Lamp Co.	75	New York Insulated Wire Co.	66	Thomas & Betts Co.	64
Connecticut Tel. & Electric Co.	76	Nat'l. Metal Molding Co.	72	Trumbull Electric Mfg. Co.	Front Cover
Code at a Glance	60	Nat'l. X-Ray Reflector Co.	57	Tubular Woven Fabric Co.	65
Commonwealth Edison Co.	81	Nat'l. Elec'l. Supply Co.	74	Tucker Mfg. Co.	77
		Newark Elec'l. Supply Co.	74		
D		N. Y. Hard Rubber Turning Co.	Radio Suppt.	U	
Detroit Insulated Wire Co.	76			United Radio Laboratories	Radio Supplement
Dossert & Co.	78	O		U. S. Rubber Co.	13
		Ostrander & Co., W. R.	72		
E				W	
Elec. Supply & Equip. Co.	74	P		Waterbury Button Co.	Radio Supplement
Enameled Metals Co.	71	Partrick & Wilkins Co.	77	Western Electric Co.	16
		Pass & Seymour, Inc.	15	Westinghouse Elec. & Mfg. Co.	58
F		Phila. Electric Co., Supply Dept.	79	Westinghouse Lamp Co.	59
Faries Mfg. Co.	75	Propp & Co., M.	73	Wurdack Electric Mfg. Co., Wm.	78
Fobes Supply Co.	74	Planetite Co., Inc.	75		
Fralick & Co., S. R.	76	Plainville Elec'l. Products Co.	76	Z	
Frink, Inc., I. P.	75			Zamoiski Co., Jos. M.	Radio Supplement

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RADIO SERVICE SUPPLEMENT

TO THE NATIONAL ELECTRAGIST

PUBLISHED ON THE FIRST OF EVERY MONTH

All Communications Should Be Addressed to
NATIONAL ELECTRAGIST RADIO SERVICE SUPPLEMENT
15 West 37th Street, New York City

National Electragist, formerly Electrical Contractor, was established 21 years ago as the official journal of the National Association of Electrical Contractors & Dealers, now Association of Electragists—International.

Number Seven

DECEMBER, 1922

Ten Cents a Copy

Say Merry Christmas With Radio

This Christmas offers a most wonderful opportunity to the electragist to cash in on radio sales. There is no limit to such gifts, either in the matter of money or application. A small radiophone receiving set is welcome to little Harry in grammar school, to Edna in High School, to hubby for his indoor entertainment and to wifey for her amusement while she is darning hubby's socks. Grandfather or grandmother will be equally delighted to be able to listen in over the air to all the great broadcasting events that are now to be heard.

Radio is of more value to the whole family than possibly any one other article that has ever been put on the market. You do not have to know how to play the piano or to play bridge, nor is it necessary that you know the names and ages of all the opera stars or all the baseball players, to carry on your end of the conversation. The air is full of things pleasant to the ear and if you don't like one thing, presto, you can tune in one another line.

Make this a radio Christmas. Decorate the show window early with holly and greens and be sure that in your display you have a comprehensive exhibit of radio; large sets and small ones, expensive equipments and cheap ones. In spite of the hundreds of thousands of receiving sets already sold, there is still a great untouched market and Christmas is the time to horn in on it.

One great thing about the radio business, it keeps repeating. A very small percentage of fans who get interested in radio ever lose the fever. They want more duffinies and dinkies to get other results and they get yearnings to hear other stations that are without the range of their present reception apparatus and then they BUY SOME MORE.

Christmas time is the time when everybody is in the buying humor. Some buy much and some buy little, but everybody buys something. See that you get your share of that business. Sell radio with other household electrical gifts. Talk radio, think radio, and sell radio.

Radio is Getting Somewhere

Radio broadcasting was doomed to the scrap heap not much more than a year ago by some kindly prophets. It is still going not only strong, but stronger. Recent announcements of plans to broadcast grand opera direct from the Metropolitan Opera House in New York City open up a great future for radio in the fine arts. Many other ambitious

plans are maturing, and we may expect to hear more good news as the winter goes on.

But the recent plans of Henry Ford to control his great branch houses throughout the country by radio means a great deal more than may appear on the surface. If other great business organizations like the International Harvester Company, the great packing concerns such as Swift and Armour, automobile factories, railroads, and other lines should follow Ford's lead—and they will in time—think of the great business opportunity for the sale and installation of apparatus and the maintenance business for electragists all over the country.

The sale of the more expensive receiving sets is more the exception than the rule at present and the great bulk of sales are in the lower price class because a man will not be willing as a rule to spend quite as much for pleasure as he will for a business necessity.

There is a chance right now for electragists in all parts of the country where head offices are located to get in to the right man and sell him the idea of controlling his organization throughout the country or throughout a section of the country by radiophone. As this idea develops it will open up more and more opportunities, not only for the sale of receiving equipment of a high quality but for sending equipment.

The sale of receiving equipment in the more moderate price class will doubtless always continue to be a considerable part of the business, but the business house equipment looms big on the horizon.

Broadcasting Organ Music

In the words of a familiar hymn, "Fill the heavens with sweet accord," has now been brought about by science. Far from destroying peoples' faith in the unseen, the engineers are now daily using invisible forces to join all who will listen into a great congregation for worship and praise.

One difficulty in broadcasting church services has been the transmission of organ music. Its range of tones, which give the rich quality to the organ, makes it the most difficult of all instruments to transmit electrically. For the organ can sound at once the lowest and the highest tones in the musical scale.

Recently, listeners to W. O. O., the Wanamaker radio station in Philadelphia, have been delighted with the excellent rendition of music from the store's great organ which is operated by Miss Mary Vogt.

Protecting From Fire and Accident Hazards

BY THOMAS HENRY DAY

Well Known Insurance Inspector Makes
Timely Recommendations to N. F. P. A.

In order that a station and its equipment, as well as the building in which it is located, may be reasonably protected against fire and personal accident hazards which may arise through such equipment, the following details should receive attention and consideration:

The Antenna

The first and most important part of a radio equipment is the antenna. The ideal station will have an outdoor antenna constructed and installed in a strong and durable manner well above buildings and away from metal stacks, transmission lines and trolley feeders. In selecting the location for the erection of the antenna, attention should be given to the proximity of electric light and power lines, that the antenna span wires will not be strung over or under lines having a potential of over 600 volts; nor should the span wires be over or under grounded trolley lines or trolley feeders.

It may be necessary, however, because of local conditions, to erect the antenna so that the span wires will be over, or possibly under the ordinary electric light or power wires of 110 volt or 220 volt systems. In this event, the construction should be of such a character that in the event of failure of either the antenna or the light and power wires, or both, one or both will not fall upon the other or come in contact with each other through swinging or sagging. The antenna should be located and installed in such a manner that the lead-in wire will be free and clear from all parts of the building and other extraneous matter.

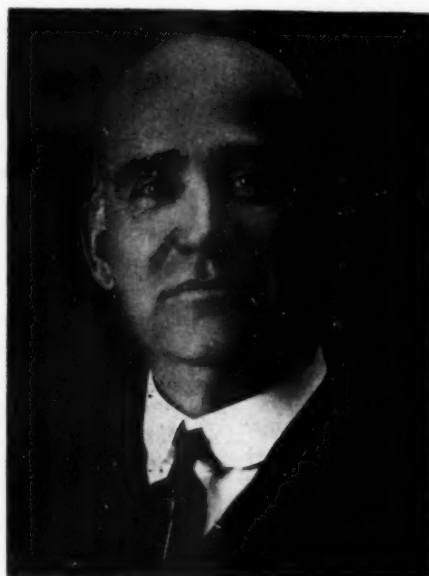
Splices and joints in the antenna span, unless made with approved clamps or splicing devices, should be soldered. The reason for these suggestions will be obvious to all interested, and they should receive attention for both receiving and transmitting equipment having outdoor antenna.

Lead-in Wire

The hazards of a receiving equipment are somewhat limited, being largely of the atmosphere, and in this respect do not differ greatly from those of the public telephone systems with their pole lines radiating in all directions.

The lead-in wires should be of copper,

approved copper-clad steel, or other metal which will not corrode excessively, and in no case should they be smaller than No. 14 B. & S. gage. Some are advocating, for use in receiving equipments, No 17 B. & S. gage copper-clad steel, the steel center being equal in strength to the copper wire of a larger size. Lead-in wires on the outside of buildings should not come nearer than four inches to electric light and power wires unless separated therefrom by a continuous and firmly fixed non-



Thomas Henry Day

conductor that will maintain permanent separation. The non-conductor should be in addition to any insulation on the wire. Lead-in wires, in all instances, should enter the building through a non-combustible, non-absorptive insulating bushing.

The above suggestions apply to receiving equipment only. For transmitting equipments there is a need for provision for safety against possibilities other than those to be found in the atmosphere. The further removed the antenna, lead-in wires, and all parts of the wiring of the station are from parallel conductors of any kind, the less will be the danger of induced currents. None of the station equipment, either indoors or out-of-doors, should be permitted to parallel any electric light or power wires, but should run at right angles to such conductors.

The nature of the metal to be used for the lead-in-wires for a transmitting equipment should correspond to the suggestions for the lead-in wires for receiving equipments. The antenna and counterpoise conductors and wires leading therefrom to the ground switch, where attached to buildings, must be firmly mounted, five inches clear of the surface of the building, on non-absorptive insulating supports such as treated wood pins or brackets equipped with insulators having not less than five-inch creepage and air-gap distance to inflammable or conducting material. Where desired, approved suspension type insulators may be used.

In passing the antenna or counterpoise lead-in wires into a building, a tube or bushing of non-absorptive insulating material should be used and should be installed so as to have a creepage and air-gap distance of at least five inches to any extraneous body. Should porcelain or other fragile material be used, it should be so installed as to be protected from mechanical injury. A drilled window pane may be used in place of a bushing, provided five-inch creepage and air-gap distance be maintained.

Protection Against Lightning

The methods for protecting station building and station equipment from lightning discharges vary in detail as to the nature of the equipment, those for receiving equipments being met with an approved lightning arrester which will operate at a potential of five hundred volts or less. The lightning arrester should be properly connected and located, inside or outside of the building, as near as practicable to the point where the lead-in wires enter the building. The lightning arrester should not be placed in the immediate vicinity of easily ignited stuff, or where exposed to inflammable gases or dust or flyings of combustible materials. A grounding switch may be installed in addition to but not in place of the above suggested lightning arrester. It has been found, through field experience, that the average amateur does not recognize the importance of changing his grounding switch to the ground side, when the station is unattended. The installation of

a lightning arrester for a receiving equipment thus becomes an imperative part of the equipment.

For the purpose of protecting a transmitting equipment, a lightning arrester is not practicable, and a number of radio engineers, including the writer, at a conference in New York last March recommended the installation of a double-throw knife switch, the specifications and design of which correspond to the standard sixty ampere, six hundred volt switch classifications, with the single exception that the use of slate bases are not recommended.

This switch should be so located, either inside or outside of the building, that its current-carrying parts will be at least five inches clear of all parts of the building or other conductors, and it is to be employed, when the stations is unattended, to connect the antenna and counterpoise lead-in wires to the protective ground conductor.

Protective Ground Conductor

Antenna conductors of both receiving and transmitting stations, also the conductors of counterpoise, when such are used, must be effectively and permanently grounded at all times when the station is not in actual operation (unattended) by a conductor at least as large as the lead-in wire. The ground conductor should be run in as straight a line as possible to a good permanent ground, preference being given to water piping. Under no circumstances should gas piping be employed as a medium to ground. Where water pipes are not available, the following methods may be employed: grounded steel frames of buildings and other grounded metal work in buildings, driven pipes, buried plates, cones, etc.

The protective ground wire should be protected against mechanical injury, and where the ground wire is connected to pipes, the connection should be made through the medium of an approved ground clamp, the ground wire being soldered into the terminal of the clamp. In the installation of the protective ground wire, it is not essential that it be insulated or even mounted on insulating supports.

Operating or Working Ground

A good operating or working ground is imperative where a counterpoise is not employed. In many instances this may be best obtained by securing the ground wire to the water piping or to the pipes of a heating system (hot water or steam) by means of an approved ground clamp. If these methods are not

available, then resort to either driven pipes, buried plates or cones, or attach the ground wire to the grounded steel frame of a building or to other grounded metal work. Gas piping, however, should never be employed.

The shorter the operating or working ground the better it will be for the station equipment. Many radio engineers urge that the instruments be located within five feet from the ground connection. This is especially true of transmitting equipments. I have secured the best results, from the standpoint of parallelism and subsequent elimination of fire hazards, when the instruments have been but eighteen inches from the initial ground connection.

While the size of the ground conductor for a receiving equipment should not be smaller than No. 14 B. & S. gage, the operating or working ground conductor for a transmitting equipment should be a copper strip not less than three-eighth inch wide by one-sixty-fourth inch thick, or of copper or approved copper clad steel having a periphery or girth (around the outside) of at least three-quarters inch (for example, a No. 2 B. & S. gage wire), and should be firmly secured in place its entire length. This operating or working ground conductor should be protected and supported, in regard to its creepage and air-gap distance, for a transmitting equipment similar to the suggestions offered for the installation of the lead-in conductors of a receiving equipment. As an extra precaution, where this ground conductor is within reach, it should be guarded against accidental contact on the part of some one in the station.

Energy from Public Lighting Company

Sometimes it is desirable to take the station energy from the lines of the public electric lighting company. This is especially true with a transmitting equipment. The use of a transformer connected to the mains in the street, which will supply the station alone, will greatly lessen the opportunity for some hazards. As an additional safeguard the several circuits should be installed in approved metal conduits, armored cables or metal raceways. Should lead-sheathed wires be used, they should be further protected throughout their entire length by approved metal conduit or metal raceways. These metal protective systems should be adequately and permanently grounded.

With transmitting equipment there is the possibility of surges and kick-backs

which may cause serious trouble on the lighting circuits, especially when the station equipment is connected to the street or public supply. That such circuits may be protected from surges and kick-backs, there should be installed in the supply line to the station equipment, as near as possible (the closer the better) to each radio transformer, rotary spark-gap, motor-generator set and other auxiliary apparatus, one of the following protective devices:

1. A shunting fixed spark-gap of not more than one-thirty-second inch separation in conjunction with two condensers (each not less than one-half microfarad capacity and capable of withstanding 600 volt test) in series across the line and with the mid-point grounded.
2. Two vacuum tube type protectors in series across the line, with the mid-point grounded.
3. Non-inductively wound resistors connected in series across the line, with the mid-point grounded.
4. Two carbon filament lamps connected in series across the line, with the mid-point grounded.
5. Electrolytic lightning arresters.

Great care should be exercised that the ground wire of the surge and kick-back protector devices does not run in parallel with the opening or working ground wire when within a distance of thirty feet. The ground wire of these surge and kick-back protective devices must not be connected to the operating ground or to the operating ground wire.

Wires Inside of Buildings

Faulty installation of electrical apparatus is a prolific cause in the creation of hazards. In most instances the faulty installation is due to the inexperience of the owner of the station equipment.

In many of the amateur stations I have inspected, I have found that the circuits supplying current for the high voltage transformer of the experimental radio transmitter have been given little or no attention. The wiring is frequently installed in a slipshod manner, very often from a miscellaneous assortment of material unsuited for the purpose. Improper insulation of conductors from each other and from surrounding objects, insufficient carrying capacity of conductors, absence of proper protective devices and the overloading of circuits are the chief shortcomings. The service rendered by such poor construction is usually very unsatisfactory, and according to J. Andrew White, in "Practical Amateur Wireless Stations," "causes excessive drop in voltage at the transformer terminals, blinking of lights and other annoyances, not to men-

tion the fire hazards sometimes incurred."

In addition to the rules in the National Electrical Code, it would be well to observe the following:

Wires inside of buildings should be securely fastened in a workmanlike manner and should not come nearer than two inches to any electric light or power wire unless separated therefrom by some continuous and firmly fixed non-conductor making a permanent separation. This non-conductor should be in addition to any regular insulation on the wire. Porcelain tubing or approved flexible tubing may be used for encasing wires to comply with this suggestion.

Protective Fuses

A fuse is an electrical safety valve in that it serves to protect a circuit from an undue overload. With very few exceptions the circuit from the public supply to a radio equipment should never have larger than ten ampere fuses. Should the fuses blow, the cause should be removed—the size of the fuses should not be increased.

The object of the fuse is to protect circuits from overloading—which means overheating. Its general employment has attached a sense of security to the use of electric service. When a fuse is improperly replaced, this protection is removed without perhaps the knowledge of those using radio equipments connected to the circuit. Reliance may still be placed upon the automatic prevention of the delivery of too much power for safety, but the sense of security has now become a false one. Through carelessness, ignorance, or accident, a dangerous amount of power may be concentrated at a point where it cannot be controlled, with resultant injury to persons or property, or to both.

Overfusing a circuit is exactly analogous to setting the safety valve of a steam boiler for a higher pressure; and replacing the fuse with copper wire, pennies or other illicit methods is analogous to tying the valve down. In both cases the protection which is depended upon to prevent disaster is removed. Such practice is indefensible. One might expect to find it confined to the ignorant, the mischievous or, perhaps, the criminal. But this is not the case. It is usually those who are familiar with matters electrical who are responsible for instances of this kind. They find the protection works inconvenience at times, so they do away with it altogether, especially when they are endeavoring to get through, and take a chance that something disastrous will not happen. The chance is usually a small one, and after several chances have been taken

without a serious result, the growth of a habit has been started. The seriousness of the resulting condition is realized only by those who come in contact with the resulting disasters.

Broadcasting Interference

Amateur League Proposes Plan to Overcome Evil

A proposal by the American Radio Relay League printed in the November issue of QST would to a great extent free the air of undesirable interference during the hours when broadcasting is at its height. In part the proposal reads:

As a result of experience through the past year of broadcasting, we have a definite program to recommend for amateur consideration. There have been many unjustified complaints against amateur QRM and of course where amateurs in cities have hogged the air all evening there have been justifiable complaints.

Most of us have realized that broadcasting was capable of becoming a powerful force for good in our country, of tremendous social economic and educational value, and have known that meant the passing of the old days when we could pound brass from supper time on and the ushering in of a new era when the air had to be shared.

As we have pointed out previously, many of us have gone so far in the business of sharing that we have almost been afraid to operate at any time, and amateur radio has suffered for the lack of a definite plan. On the other hand there are uninformed novice listeners who object to amateur transmission at any hour of night, and again the need for a recognized scheme has been shown. This we now offer.

Broadcasting is admittedly an institution of the early evening hours. That is the time that quiet air should prevail, when the greatest good can be done for the greatest number. When should we open up our stations for transmission?

Our board has considered that question and has decided upon 10:30 P.M. as the proper time. We're regretfully obliged to conclude, fellows, that the time is here when we should voluntarily keep our transmitters silent during the early evening hours if their operation interferes with listening.

This means that in all congested communities amateur stations should be quiet between the hours of 7 P.M. and 10:30 P.M. This is no new thing for most of us—we've been doing it already—but it makes it a recognized principle of amateur work.

We urge our members and clubs to get together with the listening in element in their community and have an understanding on the subject. Acceptance of this plan on the part of the amateurs means that they recognize the rights of the listeners to hear their concerts undisturbed, and that they will keep quiet between these hours.

Acceptance of this plan by the novice listeners means that they recognize the rights of us amateurs to transmit and carry on our useful work and that they will not complain against the meaningless buzzes when the lid goes off at 10:30.

This plan was proposed at a meeting of all radio people in Rochester recently and was adopted as a solution of the local difficulty. We may well call it the Rochester Plan.

Probably the Rochester Plan proposes much that is in the best interest of the amateur. In any event the Relay League suggests quick action by the amateurs on the part of what it terms their self imposed 10:30 lid.

Radio's Progress

De Forest Gives Illuminating Address Before Boston Show

At the opening of the recent radio exposition in Boston Dr. Lee De Forest gave an inspiring address on the rapid development of radio and commented how the art, heretofore a thing for amateurs only, is now becoming a household necessity. He said in part:

The phonograph has an important place in the American home as a means of entertainment and of musical instruction. It has done wonders in the way of creating a love for music. It has enriched the lives of countless thousands of those who are not in a position to attend concerts and operas in the leading centres of the country.

Radio itself has, however, gone far beyond the province of the amusement stage, and will I venture to say go down in history as one of the few revolutionary devices bringing happiness and joy to countless millions in the way of educational instruction, entertainment, and as a means of distributing the news of the world to the people in their homes.

Our religious, civic, and educational leaders have long sought for the golden key which would unlock the magic chest of adventure, romance, and entertainment before the firesides throughout the country. This magic key has now been found and the chest that it unlocks is finer cabinet radio sets that are now being offered to the public through the dealers of radio apparatus in all leading cities. No father can any longer refuse to give his children the advantages to be had through radio in the home.

There is no room in the United States of America for political interference by foreign nations, and in the radio field Tuesday, Nov. 7, should go down in history as a new day of independence for radio amateurs, for the radio trade, and for the American public in general.

This day marked the expiration of the patent on the Fleming valve—a British device which was used by its owners not only to ignore the very wonderful work of Thomas A. Edison, but to deny another American inventor the right to make use of his own invention. The

whole world recognizes what the audion means to human progress and civilization.

Expositions are ordinarily looked upon as a means of promoting the sale of some technical apparatus of no public concern. It is vastly different, however, with affairs like the Boston exposition. This is not a trade achievement only. It should be recorded rather as a public movement, the chief result of which is to promote human happiness through a development of interest in the family circle by an instrument capable of welding together an entire nation in the finer things of life.

Show in Columbus

The electric and radio show of Columbus, Ohio, was held from November 20 to 25 at the Memorial Hall. Details of the result cannot be published in this issue, but O. A. Robins, secretary-treasurer of the Electric League of that city, under whose auspices a large part of the exhibition's program was promoted, believes it will prove unusually profitable not only to the manufacturers who exhibited but to the radio and electrical dealers as well. Throngs of visitors were in attendance each day

and took away with them a manifest keener desire to use things electrical. This feeling can only result sooner or later in the buying of new appliances and radio outfit for the home, and it is felt by Columbus' interests that the exposition was well worth while.

Permanent Radio Fair

A permanent radio fair has been opened in New York at the Hotel Imperial and will continue at least until May 30, 1923. It is only daily and includes more than one hundred exhibits by manufacturers of radio equipment.

Obtaining Best Results From Various Sets

These Suggestions May Help Dealers to Answer Questions Frequently Asked by Buyers

A great deal has been said about the technical points concerning a set and its construction and use, but very little has been mentioned regarding the minor details although they are quite important, says a writer in the *New York Globe*. Let us start with the aerial and work our way down through the set and then to the ground. As we go let us observe all the details that make for efficient operation.

For broadcast reception on the shorter waves such as 360 and 400 meters, the aerial should be anywhere between 100 and 180 feet long. Put it outdoors if you can, because regardless of opinions to the contrary an outdoor aerial will give you loudest signals with the minimum of apparatus. If you put it outdoors it should be made of not less than No. 14 copper. Copper clad steel wire and stranded wire are good for the purpose. The stranded wire, besides being stronger than solid wire, is a better conductor of radio currents, as these currents travel mainly on the surface.

Solder all your aerial connection, for it is required by the underwriters' regulations, and furthermore soldered connections will be much more satisfactory and will give you much better results. The currents that flow in a radio receiving set are very weak, and every effort should be made to preserve them and prevent all undue losses that are caused by unnecessary resistance in the circuit. You would be surprised at the great difference a soldered connection makes in the working of a set. Try it.

Long Leadin Not Detrimental

You can set up your receiving set in the spot most convenient to you. Prac-

tically any room in the house will do. Place your set where you want it and run your leadin wires to meet it. A long leadin wire will not have any bad effect on a receiving set—that is provided it is within reasonable limits. A twenty foot leadin is not too great in many instances. In fact, a long leadin sometimes helps.

This all depends upon the length of your aerial and the wave length of the station that you desire to receive. The wire that leads through the rooms to your set can be of most any kind. Single strand, No. 18 lamp cord meets the bill very nicely. It has the advantage of having a fairly heavy insulation. You can string it up above the picture moulding, run it under the carpet, or in fact you can run it any way that you please.

If circumstances do not permit you to use an outdoor aerial you can string up one indoors that is nearly as satisfactory. This can be done with the aid of a pound of No. 18 annunciator wire. It is preferable to string it out in a straight line if you have the room, the same as you would string an outdoor antenna.

If you cannot do this, the next best thing is to make it into the form of as large a loop as you possibly can. It can be spread through a number of rooms if necessary. Do not join the ends of the loop but leave one end free and connect the other end to your set in the regular manner.

Now for your set. If it is of the crystal type you do not have to worry much about the arrangement of the parts. Possibly it is in a cabinet, and

therefore would need no tampering with. Crystal sets require little care, as there is not much to get out of order or need adjustment. All the care that such a set would need would be an occasional dusting, so that no dust collected on the various contacts, and an occasional change of the crystal.

Changing Detector Crystals

This changing of the crystal is done far too often by some of the newer fans. A good crystal should really last for years. The author has a crystal of galena that he has used almost continuously for five years, and it is giving as good service now as the day when it was purchased.

If you have a vacuum tube set you must be more careful about the arrangement of the different parts of which it is composed. The dials and controls should be so located that they are easily accessible. A dull-finished panel and dials are best, as reflected light detracts the attention and prevents concentration. A mass of confusing lettering on the panel is also to be avoided.

This detraction element is most important when trying to receive code messages, as in such work the utmost concentration is necessary. Make all the internal leads as short as possible. This does not necessarily apply to the A battery leads, however, if the binding posts for the A and B batteries are mounted on the back of the cabinet there will be the well-missed evidence of a confusing tangle of wires that always get caught in your hands and clothing.

Possibly the greatest care in a vacuum tube receiving set is the storage battery. Be careful to get a good one when making a purchase. Buy one from a reputable manufacturer. A size from 40 to 80 ampere hours is about right for the average receiving set having from one to three tubes.

Beware of a leaky container, as the acid that might seep through is very destructive and might eat away a portion of your carpet or floor. All the care that a battery needs is a regular charging, and the addition of distilled water from time to time to make up for that lost by evaporation.

The charging can be done at a regular battery charging station, or it may be charged at home by means of one of the outfits on the market for that purpose. If you have direct current in your house the only charging equipment that you need is a bank of lamps. If you have alternating current you will need some sort of rectifier before you can use it to charge your battery. The safe way to find out is from your electric company.

The two main types of rectifiers on the market are the vacuum tube and the magnetic. The vacuum tube type has the advantage of being perfectly safe and absolutely noiseless in operation, but the magnetic type performs its duty very well.

The ground is the next consideration. This lead may be either long or short, as desired, the considerations applying to the lead in regard to length and wave length being the same in this case, however. A cold water pipe is the best for making your ground, if one is easily obtainable. Radiators will sometimes do. Gas pipes and electric fixtures are usually insulated from the ground, but in some cases are suitable. Either solder your ground connection or use a regular ground clamp. Both would be better. If you use an outside aerial you must use a lightning arrester, according to the Underwriters' rulings. Under the new regulations this may be placed indoors. The ground wire must be at least No. 14 copper or at least No. 17 copper clad.

Exposition in Atlanta

The radio enthusiast of the southeastern states will have the opportunity to avail himself of the activities of a well planned show in the form of the Southeastern Radio Exposition to be

held in the well known auditorium at Atlanta, Georgia, December 4th to 9th.

Contests will be held and prizes awarded to amateurs entering the best homemade vacuum tube and crystal sets and the most novel and practical original hookups. A prize will be also given to the amateur who can show the greatest speed in code transmission and reception.

Lectures on the science of radio will be given by men who are well known authorities on radio construction and operation. Many splendid exhibits will be made by the manufacturers. In addition to these exhibits a novel display will be shown of a government auto truck equipped with the most modern equipment in sending and receiving sets.

New Yorkers Hear Chicago Football Game

A telephone transmitter in a sound-proof booth atop the stands at Stagg Field, Chicago was the starting point of a circuit which by wire and radio carried the story of the Chicago-Princeton football game into thousands of homes. Play by play a well known sporting writer described the game and by opening the door of the booth let his audience hear the songs, cheers, and even the referee's whistle.

Just outside the booth was the first of many vacuum tube amplifiers, which sped the story on its way over the telephone lines to New York. Here it was broadcasted by radio from W E A F, the station of the American Telephone and Telegraph Co. Downtown was a motor truck equipped with a loop antenna which intercepted the radio waves and directed them into a Western Electric receiving set connected in turn to five loud speaking projectors. These, mounted in a window of the New York *Tribune*, made the story clearly audible above the noise of traffic to a throng of several thousand people in City Hall Park. Over in Newark a similar outfit under the auspices of the *Sunday Call* told the story to another great crowd.

This is the first time that radio broadcasting has originated over a long-distance telephone circuit. Every word was clearly heard by thousand of radio fans as well as by the two big audiences. So successful was the performance that it has been decided to broadcast the most important eastern game every Saturday afternoon during the season.

Try Transocean Radio

Union College radio station WRL in Schenectady, N. Y., has made plans to become the first amateur station able to carry on regular communication across the Atlantic. In preparation for the work, which will be started this month the station is now adding new apparatus.

There will be two tubes of 250 watts each, with the current supplied by a 240 cycle alternator. Since the circuit has no filters, but is self rectifying, the tone will be the same as a 240 cycle modulated C. W. equipment. With the completion of the changes there will be four or five experienced operators ready to make the tests.

A long distance continuous wave transmission is the new field in radio work and this is the field which will be explored by the college radio men in the tests they will make under the auspices of the American Radio Relay League.

Grand Opera Broadcasting Special Hookups With Powerful Apparatus Make This Possible in New York

Plans have been completely worked out to broadcast grand opera directly from the Metropolitan Opera House stage in New York to hundreds of thousands of receiving stations within receiving range of the station. The Radio Corporation of America is now constructing on top of the Aeolian Building on Forty-Second Street near Fifth Avenue, a powerful broadcasting station. In fact it is expected to be the most powerful in the world.

When this station is opened, which will be around the first of the year, station WJZ which is now located in Newark, some eight miles out from New York, will be discontinued and the new station will take its place. All the features that have made WJZ one of the foremost stations in the country will be continued and many other attractions beside the opera broadcasting will be added.

It is expected to eventually run a private wire to the Metropolitan Opera House which is only a few block away, and as Aeolian Halls is in the same building and some of the finest artistic performances in the city are held there, it is possible that arrangements may be completed to broadcast some of this fine music also.

Experiments have proved that this broadcasting of the opera can be successfully carried out because already

the management of the operas has installed a device which conducts the music of the opera from the stage direct to the office of the manager. Those who have listened in through the device say that there is no difficulty whatever in hearing all the music and the voices of the singers.

The broadcasting apparatus being constructed on the roof of the Aeolian building consists of two towers, each 100 feet high. The building itself is one of the highest in uptown New York. Two towers form a part of the plant because it is the aim of the Radio Corporation of America to be able to broadcast two separate programs at the same time on different wave lengths without any interference. The sixth floor of the building and the roof have been taken over on a long term lease and the broadcasting studios will be located on the sixth floor.

Not all the arrangements for securing the new quality of music have been completed, but with the station so centrally located it will be possible to easily and economically make direct wire connections to every event that occurs in the Metropolitan territory.

Broadcasting in Uruguay

Uruguay has modified its rigid laws governing the installation and use of radio equipment, and according to applications now pending broadcasting will soon be started in a number of stations.

Radio Test Staged

A rather novel demonstration of the radiophone was staged recently at the opening of the electrical exposition in Motor Square Garden, Pittsburgh, when A. W. Thompson, president of the Philadelphia Electric Company spoke into a microphone inside a glass case in full view of the audience. His voice was carried by wire to station KDKA and broadcasted from there.

The message was picked up and by the use of loud speakers in several parts of the hall, everyone was enabled to hear, although the voice of the speaker could not be heard direct. Mr. Thompson's address was on the subject of "Electricity as a Great Public Service."

The engineers in charge of the staging of the demonstration had a great deal of difficulty on account of the location of the exposition and the peculiar conditions surrounding the exhibition. The searchlight, the myriad of lights

from the great fountain, and the number of industrial applications of electricity in the basement all tended to interfere with the reception. After extensive tests it was decided to place the radio receiving set across the street from the Garden. Both an outside antenna and a loop antenna were used for reception and three stages of radio amplification, a detector and three stages of audio amplification were found necessary in order to secure a sufficient volume. This is the first time, so far as is known, that a demonstration of this character has been attempted. In addition to the speech of Mr. Thompson, music was received and amplified during the entire evening.

On Getting Italy

The broadcasting of grand opera directly from the Metropolitan Opera House stage in New York City is liable to thrill some of the owners of home made crystal sets. The Italian language may lead them to believe that they have a direct wire (less) connection with Rome.

Biggest Radio Wedding

If we had a copy of Mr. Wells' Outline of History, we might possibly dig up some facts about the great wedding ceremonies in ages past. Maybe it was Mr. King Solomon—no that isn't it, he was the bird with the thousand wives, wasn't he? Well anyway, whoever it was that had the biggest wedding feast, is outclassed, is a piker, and a has been. Pittsburgh is the hamlet that goes him one better. Well, to go on:

When we went to press, they were getting all ready to have the first radiophone wedding that we ever heard of. You didn't have to have an engraved card to be a guest and the number of self invited guests has been estimated variously from 100,000 to 500,000 depending on whose figures you want to use and whether you are buying or selling.

Now whether the blushing bride and the ringlosing groom showed up for their part in the etherial (expression patented, all rights reserved) performance is unknown. We were at the time on one of the New York Central's crack trains which goes so fast that the radio waves can't catch up to it so they don't equip the train with a receiving set.

If you want to find out whether the event really happened, place your or-

der now for the next issue of the Supplement because we expect to sell out the edition before we start to write it.

N.B.—Only certified checks accepted but we will take IOU'S in exchange.

Standard Bureau Circulars

The Bureau of Standards has developed several radio sets that can be made with a minimum of tools, money and skill in tool handling. For a few cents anyone can obtain plans and full directions for making and assembling the outfits.

Of late the bureau has published additional circulars on allied radio subjects. Circular 46 describes two fixed condensers for use with either the first or second set designed by the bureau. One of the condensers is for use as a series antenna condenser and the other as a phone condenser. The original receiving sets were designed solely for broadcast reception. By using the antenna condenser this wave length may be lowered somewhat to the amateur wave lengths.

Circular 47 describes a loading coil for accomplishing exactly the opposite as the antenna condenser. Its use extends the wave length of the government sets up to 12000 meters. Any of these pamphlets may be obtained at a nominal cost from the Government printing office at Washington.

Book Prizes

As a result of receiving many complimentary letters on behalf of its excellent broadcasting program, the Crosley Manufacturing Company of Cincinnati has planned to give book prizes for the best criticisms sent in of one night's program a week. Two books each week will be presented, one awarded to the adult listener who writes the best letter and one to the best juvenile correspondent.

On Thursday, November 16, this company observed Radio Party Night. The address that was broadcasted emphasized the importance of Cincinnati, and the entire musical program was made up of selections by Cincinnatians. Every owner of a receiving set was urged to invite his or her friends to hear the special concert, and every host or hostess was urged to send in the names and addresses of all guests to whom a reward was presented by the Cincinnati Chamber of Commerce.

Plans Broadcast Monopoly

Great Britain Believes Best Interests Will Thus Be Served

The advancement of radio telephony is being seriously retarded in Great Britain by two conditions, the small size of the territory and the necessity of protecting British radio equipment manufacturers against American and German competition.

According to a late report, twenty-three manufacturers have formulated articles of agreement to pool their inventions and form a company to be known as the British Broadcasting Company which would be a public utility service for the broadcasting of news, information, concerts, lectures, educational matter, speeches, weather reports and theatrical entertainments.

Any bonafide British company can join the association by buying one or more shares and making a deposit. Each member must guarantee that the goods he sells are of British origin and a royalty ranging from 4 cents to \$10.00 is paid on each piece of receiving apparatus sold, this going to the British Broadcasting Company. Broadcasting apparatus is not to be made for any company not a member of the monopoly and such apparatus for member companies must be approved and sealed.

The British government through the postmaster general is in back of the project and guarantees that no foreign made broadcasting sets shall be sold or operated. This protection would exist for a period of two years. In other words, there can be no foreign competition.

The plan has been approved by the government and by a number of companies, but has not at the date of this writing been put into operation. There is some objection to the plan on the part of the Radio Association which deplores the fact that thousands of license holders were ignored in the plans and that the public is receiving no adequate protection against the growth of a monopoly. Objection was also made to the royalties which were considered excessive and which bid fair to cripple an important British industry.

It would of course be impossible to allow unlimited broadcasting in England and Scotland, which territory is approximately the size of Pennsylvania. The twenty-three larger firms, all broadcasting at once, even under a program schedule and operating on varying

wave lengths would cause untold confusion.

On the whole, radio does not seem to have such bright prospects as it has in this country. If royalties have to be paid on all parts of receiving sets, foreign competition stifled and broadcasting in the hands of a monopoly, prices of even the simplest of receiving sets will be sky high. It is also understood that receiving sets require the payment of an annual license and have to operate under strict rules.

Denver Jobbers Organize

A local branch of the National Radio Jobbers' Association has been organized in Denver, Col., and Jack L. Hursch has been elected chairman. Among those who were active in launching this group were J. C. Davidson and A. F. Grossman of the Hendrie & Bolthoff Manufacturing & Supply Company, and Tom Yonley and Louis Grove of the Mine and Smelter Supply Company.

New York Exposition

Over 40,000 square feet in Grand Central Palace, New York City, will be devoted to the American Radio Exposition December 21 to 30. The show will be open Christmas but not on Sunday. As these dates come in the holiday season of colleges and technical schools, it is expected that there will be a considerable proportion of student attendance.

The exposition has been approved by the National Radio Chamber of Commerce and the Associated Manufacturers of Electrical Supplies. An advertising campaign has been in progress to interest the public in the show. The project is under the management of the American Radio Exposition Company of New York City.

Japan Will Have Radio

Application for government sanction to establish a wireless telephone system has been made by the Daido Electric Power Company of Nagoya, Japan, according to advices received by the Department of Commerce.

The company proposes to operate this wireless system primarily for its own convenience in connecting the various stations with its electric light and power system, but its use may be extended eventually to the general public if sufficient demand should arise.

As at present planned the wireless system will start from Okuwa in Nagano Prefecture on the Central Japan Railway Line, from which point communication will be established through Nagoya and as far as Osaka, a distance of about 150 miles.

King and Queen Hear Radio

Their majesties, the king and queen of the Belgians, have become radio fans. According to recent despatches King Albert and his queen listened in to a test concert of the Maline Cathedral chimes, broadcasted from the tower by radio.

Medical Radio Service

The United Fruit Company has recently announced the inauguration of a free medical radio service from its hospitals in the various countries of Central America and from its passenger steamships to all ships at sea. This service is to be available without charge to ships of all nationalities through radio stations operated by this company and the Tropical Radio Telegraph Company, of New Orleans.

All ships of the United Fruit Company carry doctors and are therefore well equipped to render medical service to other ships either passenger or cargo vessels not carrying physicians.



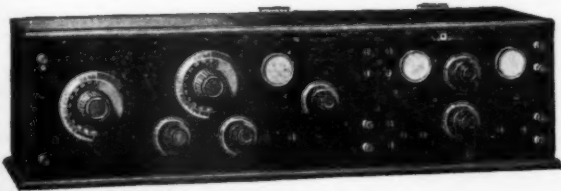
Start of the Trade Special. By Touching the Switch, E. M. Herr, Westinghouse President, Set in Motion a Trainload of 33 Cars of Electrical Equipment for the Chilean State Railways Which Marked the First Accomplishment of Such a Feat by Radio

URADIOLA

---"Engineered Radio"

THINK of being able—*actually able* to hear each and every broadcasting station within a radio of 600 miles! No matter what the weather, *URADIOLA* Radio Frequency Type Receivers positively bring to the operator the most satisfactory results on a loop antenna consisting of 18 feet of wire. And stations within 20 miles require no ground or antenna connections.

One of the Most Popular Models is This BR2



One step Radio Frequency, Detector, Tuner and Two Step Amplifier, in attractive, hand rubbed solid mahogany cabinet.

Note This About Uradiola Outfits:

No outside wires. No Underwriter's requirements to worry about. Perfectly balanced circuit. Easily tuned by beginners. Stations brought in or out as desired. Volume of sound fills a large room with ease.

Liberal discounts to jobbers and dealers.

Order a sample set to convince yourself first.

UNITED RADIO LABORATORIES

"Engineered Radio"

411 East Pearl St.

Cincinnati, Ohio

From Kite String to Radio

Electricity Has Revolutionized Domestic and Industrial Life

When Ben Franklin sent up his kite in a thunderstorm and brought down from the lightning a force which gave out a spark from the metal key at the end of the kite string he started something which has revolutionized the domestic and industrial life of the world. This was in June, 1752. Prior to that time practically nothing was known about what is now called electricity, although magnetism had been known to mankind since the pyramids were built, and had been studied and described by Gilbert in 1600.

Franklin's experiment started scientists to investigating this phenomenon. In 1799 Volta, an Italian physician, devised the first electric battery. His name is perpetuated for all time in the word volts, the universal unit of measurement of electric force.

Sir Humphrey Davy in 1806 decomposed potash with a great set of Volta's batteries, and so laid the foundation for the gigantic electro chemical industry of today. Two years later he invented the first arc light, which has revolutionized municipal lighting, making possible the nightly blaze of Broadway and all other Great White Ways.

Ampere, in 1820, worked out a theory which Michael Faraday applied the following year in the first electric motor, a crude affair consisting of a copper disc rotating between the ends of a horseshoe magnet. Twenty-one years later the first steam driven dynamo was built; and in 1873 it was discovered that the dynamo, when connected with another source of power, would run backwards. Thus came into being the commercially successful electric motor.

In 1837 Samuel Morse, who had been experimenting for a long time with the idea of sending messages over an electrified wire, operated the first telegraph in New York. Seven years later he had the first long distance telegraph line working from Baltimore to Washington.

Cyrus Field applied this idea to intercontinental transmission of messages. He laid the first submarine cable in 1857, but it worked only a week. In 1866 the first successful cable was laid by the ship "Great Eastern" between America and Europe.

In 1875 Alexander Graham Bell made and put into operation the first telephone.

In 1879 Edison perfected and began

to manufacture his incandescent electric lamp. Two years later he built the first steam power house in Pearl Street, New York—used to this day. That same year the first electric car was operated in France.

Marconi in 1896 gave to the world the first successful wireless telegraphic outfit. This crude affair was soon superseded by improved apparatus, and after only a development of twenty-five years, the world comes to recognize devices that carry the human voice over the entire world.

And now comes Radio.

Receives Radio Prize

When the three electrode audion or vacuum tube, the invention that made radio telephony possible, came into being along in 1912, it set to working the mental machinery of Reginald A. Heising, a young physicist working for a degree as Master of Science in the University of Wisconsin.

"If I could put into a vacuum tube the amount of energy produced by the voice and get it out many times amplified in the form of high frequency power in an antenna, what an advance it would be," thought this young scientist.

Armed with his degree he went to work on this problem in the research laboratories of the Bell System operated by the Western Electric Company. Six weeks after he started, his first patent establishing the basic principle of the Heising modulation system was applied for. Since that time he has been engaged in perfecting the discovery. How well he has solved the problem was proved by the award in 1921 to him of the Morris Liebmann Memorial prize by the Institute of Radio Engineers. This is the highest tribute which the radio fraternity can bestow upon a fellow scientist.

In the communication field today the Heising system of modulation is a fundamental law and the young inventor whose work in research brought it about holds an enviable position in the world of scientific achievement.

Hotels Use Radiophone

Radiophone will be used extensively for the entertainment of hotel guests within the near future, according to an article in the New York State Hotel Messenger. Improvements in radio communication are coming so fast and exciting such widespread interest that its possibilities as an accessory to the

hotel interests may be said to be almost without limit.

It was pointed out that numerous hotels throughout the United States have already instituted radio service for their patrons and others are preparing to do so. A recent striking indication of the drift is seen in the announcement that a New York company manufacturing radio apparatus announces that it has contracts for 25,000 receiving sets which operate only on deposit of a quarter—the orders coming chiefly from hotels and hospitals.

If a guest in a hotel room or a patient in a hospital so equipped desires a little entertainment he has merely to drop his coin exactly as if the set were a chewing gum or penny arcade machine, and he gets everything that comes over for the next twelve hours—jazz, weather reports, baseball scores, etc.

The cost of installation under this system will be borne equally by the company and the hotel or institution, and the profits or loss will be divided equally between them. The machines are expected to be in operation within a very short time.

In New York City the recent growth of the radio has been so rapid that it is estimated there are now from 75,000 to 100,000 apartments in the city equipped with receiving sets. Wireless equipment has in fact come to be considered so indispensable that plans now being made for many new apartment houses to be built in the next year or so provide radio equipment for each apartment. There will be a central receiving station connected with the apartment and in charge of an experienced radio operator, similar to the switchboard operators in apartment buildings.

Radio broadcast concerts and news will be received by the central station and radiated to each apartment, which will be furnished only with a loud speaker, since all the radio instruments will be in the central radio room, where the complete tuning will be done by the expert in charge.

Radio in Great Britain

The advance of the great radio industry in this country reads like romance. From a toy of scientists and inventors it has become common to about one home in five throughout the United States. The foresight of Federal officials and the splendid manufacturing facilities of makers have both

RADIOGRAM NO. 1

The Much Talked of C. R. C. Circuit Radio Frequency

(eliminating the use of transformers)

We are presenting the Radio public with the results of our efforts in producing a Radio-Frequency Amplifier having one stage of Radio-Frequency as a detector and two of Audio for amplification.

Until recently Radio-Frequency has been in a stage of development and very little success has been obtained in constructing an instrument giving complete satisfaction. Radio-Frequency correctly applied is far superior to the more sensitive regenerative circuits. It is more easily tuned, and totally eliminates general capacity effects which are objectionable.

On introducing the C. R. C. CIRCUIT, we guarantee the very highest efficiency for radio reception. This accomplishment has been attained by many months of extensive experiments which has prepared us to construct the C. R. C. CIRCUIT with the finest of materials, using parts manufactured exclusively by us guaranteeing maximum efficiency. This selection in combination with a patented circuit is the answer to its success.

WE OFFER DEALERS AND JOBBERS, who have been skeptical in the past, an opportunity to hear Radio-Frequency at its best.

Write or wire your order for a sample set, complete details and discounts.

Circle Radio Company, 5 Columbus Circle, New York City

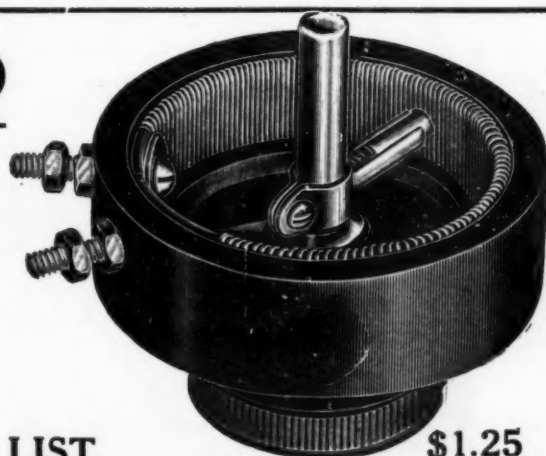
SUNRAID



DIALS

The new improved SUNRAID DIALS are of one solid piece of moulded condensite. The Dials are so constructed that when mounted on a panel they set off 1-32 of an inch from the surface of the panel, which gives a maximum of efficiency in smooth operation — no gripping.

List
Price
3 in. \$1.00
4 in. \$1.50



LIST

RHEOSTATS

Radio men who want a Rheostat of high class workmanship that gives a maximum amount of service will find it worth their while to buy the SUNRAID RHEOSTAT. It gives perfect contact against winding at all times. (See spring attachment in above photograph.)

Windings guaranteed not to jump out.

SUNRAID PRODUCTS are always guaranteed. Distributors wanted for all parts of the world. Write for proposition. AMATEURS—If dealer cannot supply you, write direct and send dealer's name and address. DISTRIBUTORS—Samples will be sent to you C. O. D. upon request.

PRODUCTS



List
Price
\$1.25

PLUGS

SUNRAID PLUGS are made of the best of material—casement of pure bakelite with a high polish. These plugs will take cords with spade or wire tips.

SUNRAID



RADIO CO.,

534 EIGHTH AVENUE,

NEW YORK CITY, U. S. A.

Trade Mark

contributed largely to this healthy condition.

In Great Britain quite the reverse is true. The government, through the Post Office Department requires a license for every receiving set in use and charges a license fee of what would amount to around \$2 and this is shortly to be increased to about \$3.75. Half of this sum goes to the government and half to the broadcasting stations. How the law is enforced is somewhat of a mystery as a receiving set is easily installed without any outward signs of its existence.

Manufacturers have very close working agreements and this coupled with the fact that the receiving sets are built quite expensively, brings the cost up pretty high. Sets that would retail in this country for less than \$30 retail over there for about \$100. Crystal sets cost \$25 or more.

Most of the broadcasting at the present is done from the Hague by a London newspaper but three broadcasting companies are making arrangements to get into action soon.

Owing to the high price of English apparatus, it is not likely that it can compete with American made goods in this country. On the other hand, it will not be possible to sell American apparatus in England for two years at least as the law prohibits the use of any but British made instruments.

Largest Vacuum Tube

Development Tube to Handle 100,000 Watts of High Frequency Power

When engineers of the Bell Telephone System accomplished the first transmission of speech across the Atlantic in 1915, they used 300 vacuum tubes, not much larger than the ones in your radio set, to generate the necessary high frequency power. Since that time developments have gone on in the Bell System Laboratories of the Western Electric Company in New York, resulting in the manufacture of tubes of the same general type which will supply 250 watts and more. Two of these 250-watt tubes generate the power for the larger broadcasting stations, such as WBAY, WEA and others. Now the telephone laboratories have developed a tube capable of supplying 100,000 watts, or 200 times the power required for the usual broadcasting station of 100-mile range.

The essential feature of the new tube is that the plate is a copper cylinder forming the outer wall of the tube. In the customary tubes used in radio sets,

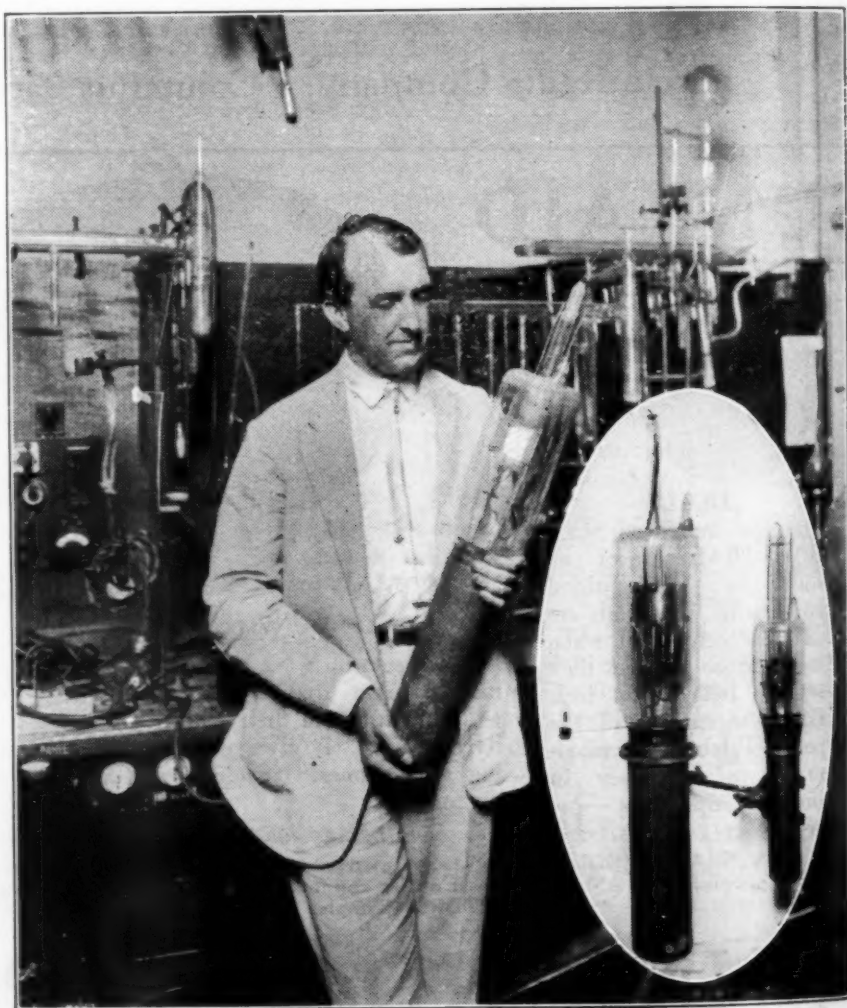
the plate is an actual plate or small cylinder of thin metal enclosed in a glass tube. If even a small fraction of an ampere is passed through the plate circuit of one of the small tubes, the plate will become very hot. In the larger power tubes this heat becomes so great that some means other than radiation must be provided to carry it off, or the tube will collapse. This is easily done when the plate is the outer wall of the tube, for it can be put into a tank of water which circulate through a radiator. The tube is then water-cooled just like an automobile engine.

This sounds easy enough. The real difficulty was to make the whole tube air tight and to get the wires for the filament and grid into the tube while keeping them insulated against about 20,000 volts. After much study, the problem was narrowed down to finding a way to make an air tight joint between the heavy copper tube which forms the plate and the glass of the upper part of the tube, and to bring

the heavy wires through this glass. Credit for the answer is due to W. G. Houskeeper, a western Electric Engineer, who discovered a way to seal copper to glass which would make an air-tight joint that would not crack at any ordinary working temperature.

One of these big tubes stands three feet high and is 3½ inches in diameter at the bottom. To heat the filament, for which in radio receiving tubes a single dry-cell or a small storage battery is enough, this tube used 6,000 watts. For the plate circuit, instead of the familiar B battery, a high voltage direct-current generator is used, or an alternating current rectifier.

The significance of these big tubes is that only a very few would be necessary to operate even the largest radio stations now in service. The combination of vacuum tube and its current supply, it is expected, will be less costly, more rugged and more easily adapted to various wave-lengths than any other source of radio power now in use.

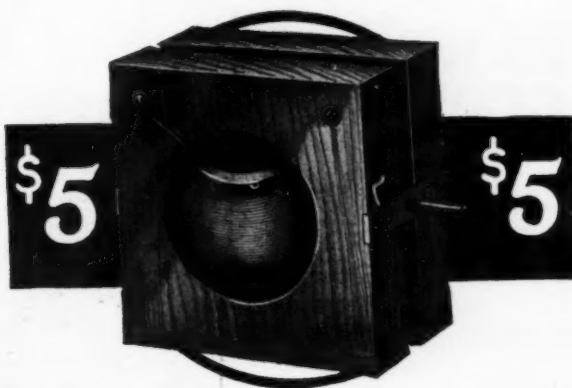


W. G. Housekeeper, the Western Electric engineer whose epoch making invention led to the production of the world's largest vacuum tube, and the tube itself. Insert shows in graphic fashion just how the new monster tube compares with the little "peanut" tube used in the average radio receiving set and the 10,000 watt tube which only recently was considered the last step in this department of science

QUEENS Vario Coupler



QUEENS Vario Meter



**WE SELL THESE GOODS
TO YOUR CUSTOMER**

But we need a place where he can secure them quickly.
Let us tell you how we do it.

Write for our proposition

QUEENS RADIO COMPANY, Inc.

12 FOREST STREET

WINFIELD, L. I.

RADIO PARTS

Knobs—Dials—Ear Caps—Strain Insulators—Etc.

"MEGOHMO" MOULDED INSULATION

METAL STAMPINGS

From Your Blue Print Or Samples

WATERBURY BUTTON CO.

Manufacturers Since 1812
WATERBURY, CONN.

OFFICES—NEW YORK

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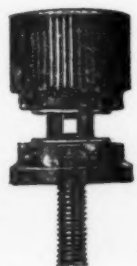
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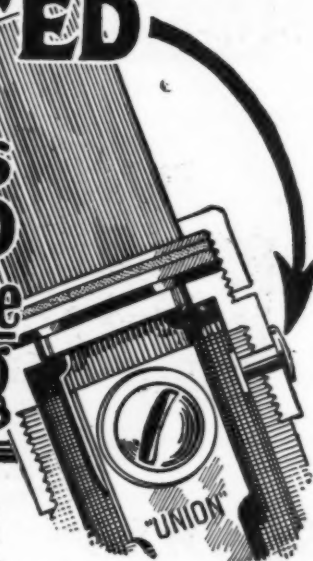
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to the Outside
of the tubing



The ends let go first on most fuses when subjected to pressure, due to the tubing being weakened there by threads. But the ends are the strongest points in "Union" Renewable Fuses as they are riveted to the outside of the tube.

In addition, "Union" Fuses are not forced to withstand the usual high pressures caused by short circuits. The "Union" link is treated so that it will blow without violence or enormous pressure. But, notwithstanding this, there are vents, or safety valves, on the ends which permit gases to escape quickly. This construction, together with thick, fire-resisting tubing and extra heavy metal parts, enable "Union" Renewable fuses to withstand a greater number of blowouts than any other fuse.

Add to these features the easy renewal of the "Union" and you will understand why

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Manufacturers of Switch and Outlet Boxes, Cut-Out Bases, Fuse Plugs, Automobile Fuses, Renewable and Non-Renewable Enclosed Fuses.

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TRADE MARK
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'UNION'
RENEWABLE AND NON-RENEWABLE
FUSES



Radio in Czechoslovakia

Radio development in Czechoslovakia has not yet passed the stage of infancy according to dispatches to the Department of Commerce from Consul Winans, Prague. He states however that the government has already taken an active interest in radio development and in view of a more extensive and popular acceptance of this form of communication at home has sent a special commission of experts to study the progress made in other countries. Whether a sending station for radio messages will be established in Czechoslovakia will depend upon the findings of this commission.

Even when finally introduced, however, the local industry can not be expected to attain the state of development reached in the United States. It is stated by the ministry of posts and telegraphs that all messages sent by radio will be subject to strict control by the government; not every person will be permitted to own a receiving or sending apparatus. High duty will be assessed on radio outfits and supplies of foreign make, and each radio set, whether of domestic or foreign manufacture, will have to be registered at the ministry of posts and telegraphs. Many local factories are said to be interested in the future of radio-telephony and to be awaiting a favorable moment for producing the necessary requirements of the industry.

Using Alternating Current

Electron Tube Amplifier Takes 60 Cycles to Supply Power for Filaments

A scientific paper of the Bureau of Standards, obtainable from the superintendent of documents, government printing office, Washington, D. C., describes an electron tube amplifier which uses 60-cycle alternating current to supply power for the filaments and plates.

Such an amplifier has the advantages of low first cost and cheapness of operation besides doing away with the inconvenience of the storage battery and the B battery.

This paper describes such an amplifier developed at the Bureau of Standards using a crystal detector and five stages of amplification, three stages of radio frequency amplification and two stages of audio frequency amplification.

The first arrangement tried consisted of one radio frequency stage of amplification, tube detector, and one stage of audio frequency amplification. The filaments of the three tubes were lighted by 6 volts supplied by a step-down transformer, the primary of which was connected to 110-volt, 60-cycle power mains.

It has been found that either air core or iron core transformers may be used for coupling the output of one tube to the input of the next tube. The air-core transformer gives more amplification per stage, but is responsive to only narrow band of frequencies owing to the low effective resistance of the windings; the iron-core type, while not giving as much per stage, allows amplification over a much broader band of frequencies.

A special type of air-core transformer which will respond to signals on wave lengths from 600 to 1000 meters is described. The coils of the transformer were wound in the form of a flat doughnut, the wire being wound in a manner similar to that of the open or basket type of coil winding. They are wound continuously from the inside to the outside. Two of the coils constitute an air-core trans-

former, one coil being connected in the plate circuit of one tube and the other being connected to the grid circuit of the succeeding tube.

It is found that when the primary and secondary transformers are placed about one-half an inch apart, the transformer gives the best amplification at 600 meters; and when the coils are placed close together, the amplifier operates best at 1,000 meters. This is due to the increase of the capacity between the coils when placed adjacent. An amplifier having three stages of radio frequency, two stages of audio frequency amplification, and a detector tube, may be constructed as described in this paper.

Klosner Rheostat and Amplitrol

The Klosner Improved Apparatus Company, 20 Boston Road, New York City, has recently brought out two new pieces of apparatus, the Klosner Vernier Rheostat Model 200, and the Klosner Amplitrol.

The new rheostat has a vernier micrometer adjustment which makes it very sensitive.

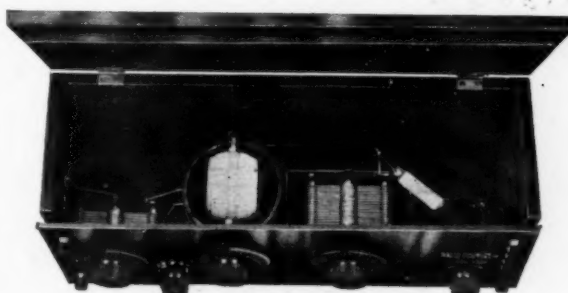


It is made of genuine condensite with phosphor bronze contacts. It is equipped with a dial on which graduations are shown in white. Both course and fine adjustments are operated by one single knob.



The Klosner Amplitrol allows controlling the vacuum tube circuit without the use of jacks, plugs or additional switches. With the Amplitrol in use, it is no longer necessary to plug in from one stage to the next. The phones

A CHRISTMAS RADIO SET AT A MODERATE PRICE



LIST PRICE, \$27.50

Here is a set that you can sell to anyone and have confidence in. It is a high grade standard tube set with double tuning circuit.

It has a hard rubber panel 7 x 18, drilled and engraved, with a handsome mahogany cabinet. Connecting wires are cut, bent and turned ready for soldering.

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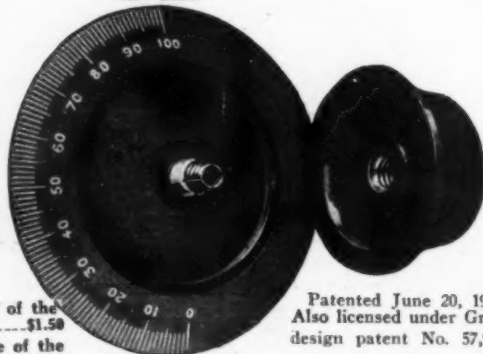
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Herbert Frost	Acme Apparatus Co.
"Dragon Batteries"	Burgess Battery Co.
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or loudspeaker are simply attached to binding posts and any stage is turned on at will.

The Amplitrol not only adjusts the filament to its maximum efficiency, but it also automatically switches on and off the plate circuit. The Amplitrol does not put a sudden strain on the filament. It provides a gradual current increase for the filament.

It is made of moulded condensite with phosphor bronze contacts. Its exposed metal parts are highly nickel plated. It has a new style knob and dial with graduations in white lettering.

Develops No Battery Tube

A tube to operate on alternating current and without the use of either A or B batteries has been developed by the research laboratory of the General Electric Company. Dr. A. W. Hull, at a recent meeting of the Institute of Radio Engineers, described the new tube which is of the four element type.

The filament performs the double function of a cathode for the rectifier that provides the plate voltage and a radiant heater for the pliotron cathode. Surrounding the filament is a cylinder which serves simultaneously as a pliotron cathode and as the anode of the kenotron rectifier.

Unusually high amplification has been obtained, and the tube is used as a radio frequency amplifier. The voltage amplification is about four times that of a UV-201 tube at both radio and audio frequencies. Dr. Hull did not state when the new tube would be made commercially.

Standard Heating Transformer

The Standard Transformer Company of Warren, Ohio, successor to the miniature division of The Packard Electric Company, has recently perfected several new types of radio transformers.

The audio frequency amplifier type is of the shell design; the magnetic circuit being built up with 29 gauge high test silicon alloy steel which completely surrounds the copper circuit. The magnetic circuit is worked at normal density at commercial frequencies which results in a very low density at audible frequency. The reluctance of the core is very low as compared with air working at these low densities, and with the core surrounding the copper circuit a shield transformer with practically no distortion in amplifying results.

The turn ratio of the copper circuit is 9 to 1. The primary is insulated from the secondary with several layers of varnish cloth and fiber. The entire winding is given a paraffin and rosin treatment and each coil is subjected to a 1500 volt test at 60 cycles between windings and core.

The electrical characteristics have been adjusted from experimentation so as to give maximum amplification without distortion with standard radio-trone tubes of the 200 and 201 class. Both windings are made of No. 40 B & S gauge flexible enameled wire. The resistance of the primary winding is 480 ohms and the secondary has a resistance of 5800 ohms.

This transformer is furnished in three types. The mounted type is equipped with four side clamping brackets of brass; head board of 1-8 bakelite dielecto and four brass terminal posts. The dimensions are 3 inches high by 2 inches wide and by 2 inches deep.

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and to-day

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